Supreme Court, U.S.
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No.

IN THE

Supreme Court of the United States

HERCULES INCORPORATED,

Petitioner,

v.

UNITED STATES OF AMERICA,

Respondent.

ON PETITION FOR A WRIT OF CERTIORARI
TO THE UNITED STATES COURT OF APPEALS
FOR THE EIGHTH CIRCUIT

PETITION FOR WRIT OF CERTIORARI

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QUESTIONS PRESENTED

1. Whether the Fifth Amendment to the Constitution permits the unexpected and unforeseeable imposition of over $100 million in retroactive liability that is utterly disproportionate to a party's conduct, without any consideration of the factors articulated by this Court in *Eastern Enterprises v. Apfel*, 524 U.S. 498 (1998).

2. Whether the Environmental Protection Agency's use of its cancer potency factor for dioxin is contrary to the Administrative Procedure Act, 5 U.S.C. § 553, because EPA admittedly has applied this factor inflexibly and without exception for over twenty-five years, effectively creating a legislative rule, but without ever subjecting it to notice-and-comment rulemaking.

PARTIES TO THE PROCEEDINGS BELOW

In addition to the parties listed in the caption, Crompton Co./CIE (formerly known as Uniroyal Chemical Ltd.) appeared as an appellant in the Court of Appeals. The Arkansas Department of Pollution Control and Ecology appeared as a plaintiff in the District Court. The following parties appeared as defendants or third-party defendants in the District Court: Vertac Chemical Corporation, Velsicol Chemical Corporation, Inter-Ag Corporation, the Department of Defense, Standard Chlorine of Delaware, Inc., BASF Aktiengesellshaft, BASF Corporation, and The Dow Chemical Company.

RULE 29.6 STATEMENT

Petitioner Hercules Incorporated states that it has no parent companies and that no publicly-held company owns 10% or more of its stock.

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PETITION FOR A WRIT OF CERTIORARI

Petitioner Hercules Incorporated ("Hercules") respectfully petitions for a writ of certiorari to review the judgment of the United States Court of Appeals for the Eighth Circuit in this case.

OPINIONS BELOW

The Eighth Circuit's opinion (Pet. App. 1a-24a) is published at 453 F.3d 1031 (8th Cir. 2006). The opinion of the district court (Pet. App. 25a-65a) is published at 364 F.Supp.2d 941 (E.D. Ark. 2005).

JURISDICTION

The Court of Appeals denied a timely petition for rehearing and rehearing en banc on September 19, 2006. (Pet. App. 66a). This Court has jurisdiction pursuant to 28 U.S.C. § 1254(1).

RELEVANT CONSTITUTIONAL AND STATUTORY PROVISIONS

The Fifth Amendment provides in relevant part: "No person shall . . . be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation." Relevant statutory excerpts from 42 U.S.C. §§ 9607(a), § 9613(j)(2), and 5 U.S.C. § 553(b) are reprinted in the Appendix (Pet. App. 67a-69a).

STATEMENT OF THE CASE

In this case, the Eighth Circuit imposed over $100 million in unexpected and unforeseeable retroactive liability on Hercules under CERCLA, the Superfund statute. The Court of Appeals required Hercules to pay cleanup costs for wastes generated at a chemical plant by a third-party purchaser, even though the generation and disposal of those wastes indisputably occurred *years after* Hercules had ceased production and sold the plant, and *years after* Hercules

exercised control at the site. In fact, the waste accumulation and disposal occurred when the site was under continuous supervision by a federal court and state and federal environmental agencies. Pet. App. 4a-6a. The Eighth Circuit nonetheless held Hercules liable on the ground that a highly tenuous but-for causal chain could be constructed between Hercules and the waste at issue. The Court of Appeals opined that, because it had upheld the retroactive application of CERCLA in a different case with different facts, it could impose over $100 million in retroactive liability in this case without even considering the principles of *Eastern Enterprises v. Apfel*, 524 U.S. 498 (1998).

The Eighth Circuit further held that the Environmental Protection Agency ("EPA") was not required to submit its cancer potency factor for dioxin to public comment and rulemaking under the Administrative Procedure Act ("APA"), even though the agency has treated its potency factor as a legislative rule for over two decades at every dioxin site in the country, *without exception* — resulting in nationwide costs of over $100 billion. EPA's failure to comply with the basic requirements of notice-and-comment rulemaking has allowed the agency to evade the overwhelming scientific evidence against its potency factor and to avoid accountability for its regulatory and political choices. This is a textbook case of an administrative agency run amok. Yet the Court of Appeals opined that EPA's potency factor was not a legislative rule because the agency claimed in litigation briefs (but not in the administrative records) that it was only "advisory." Pet. App. 21a. The Eighth Circuit's ruling conflicts with administrative law decisions by other courts of appeals, particularly the D.C. Circuit, which has a well-developed body of precedent on the issue of when rulemaking is required.

This case is of national significance. The CERCLA statute's retroactive application of strict, joint and several liability to non-negligent activity is unique in American law and has imposed massive economic costs. *See* Stephen

Breyer, BREAKING THE VICIOUS CYCLE: TOWARD EFFECTIVE RISK REGULATION 18 (1993). The holdings of the Eighth Circuit raise important questions of federal law and conflict with decisions of this Court and of Courts of Appeals outside the Eighth Circuit. The questions presented are independent of each other, and this Court's plenary review is amply warranted on both.

1. Background.

This case is a CERCLA cost recovery action, filed by the United States pursuant to 42 U.S.C. § 9607(a), involving a chemical manufacturing plant known as the Vertac Chemical Corp. ("Vertac") site in Jacksonville, Arkansas. Hercules acquired the plant in December 1961 from Reasor-Hill Corporation and substantially improved it over the course of the next decade before ceasing production in 1970. Pet. App. 3a-4a. Hercules' primary products were herbicides known as 2,4-Dichlorophenoxyacetic acid ("2,4-D") and 2,4,5-Trichlorophenoxyacetic acid ("2,4,5-T"). These herbicides are synthetic growth hormones that kill weeds or brush by accelerating growth to the point of natural death. Under normal conditions, each herbicide biodegrades relatively quickly into harmless substances. They were used as replacements for lead arsenate, a much more lethal herbicide. JA24101-24102.

Hercules sold over 90% of its 2,4,5-T production to the Department of Defense under rated orders (which could not be refused) as a component of the defoliant "Agent Orange." JA24854. (Agent Orange was used by the US military in Vietnam to defoliate the forest canopy which provided cover for enemy troops.) In 1965, Hercules learned that the manufacture of 2,4,5-T created a trace by-product known as 2,3,7,8-Tetrachlorodibenzo-p-dioxin ("TCDD" or "dioxin"). By contrast, the manufacturing process for 2,4-D did not produce dioxin. While Hercules operated the plant from 1961 until 1970, there was no scientific evidence, anywhere in the world, linking dioxin to cancer. Scientists from The Dow

Chemical Company published the first such research paper in 1978. JA24552.

The courts below found that Hercules operated the site in an exemplary manner. The Eighth Circuit concluded that "Hercules generally improved the safety and cleanliness of the site and complied with environmental regulations between 1961 and 1971." *United States v. Hercules, Inc.*, 247 F.3d 706, 712 (CA8 2001). The District Court similarly cited Hercules' "cooperation with government officials"; explained that "[t]here is no doubt that Hercules' safety and environmental programs are to be commended"; and opined that "Hercules' safety and maintenance programs are laudatory." *United States v. Vertac Chemical Corp.*, 79 F.Supp.2d 1034, 1040 (E.D. Ark. 1999). For example, Hercules installed an underground sewage system to collect chemical wastes, upgraded major items of equipment to prevent leaks and spills, installed curbs and gutters around equipment areas, and took a number of other steps to "tighten up" the production process. JA10473, 24066, 24081-24086, 24090-91. Hercules also took great care in its selection of an onsite burial location for its chemical wastes and carefully monitored nearby creeks to ensure that it was not polluting them. Testing showed that the runoff water was safe enough to drink. JA24101.

Hercules never had an accidental death while it ran the plant. In fact, it operated for nearly seven years without a single day of lost time due to an on-the-job-injury and won numerous safety awards. JA24100, 24105. Hercules was the *only major manufacturer of 2,4,5-T in the world* never to have had an outbreak of chloracne, the signature illness of dioxin exposure, in its workforce. JA10481. Other companies had as many as 200 cases of chloracne. JA24091-95.

In the years after Hercules' operations at the plant ended, residents of the surrounding areas and former workers sometimes alleged in legal proceedings that they had been injured by exposure to dioxin. *Hercules prevailed at every*

trial.[1] In addition, a NIOSH mortality study found that Hercules' employees had *lower* cancer rates than the general public. JA10214-16, 10235-36, 24129. Extensive testing of residents of Jacksonville and Mabelvale (a nearby community) revealed essentially background concentrations of dioxin – in fact, slightly lower than levels found in most populations in the United States. JA24589-90.

2. Generation and Disposal of Wastes By Vertac Under Governmental Supervision After Hercules Had Left the Site.

Notwithstanding Hercules' best efforts, the Jacksonville plant was not profitable. In fact, in its ten years of operations, Hercules lost $3 million on total sales of about $38 million. JA20666-20668. Because Agent Orange (a non-consumer product manufactured for and sold only to the United States military) consumed nearly the entire productive capacity of the plant for over three years, Hercules lost its domestic customers for herbicides and shifted its sales force and distribution network to other products. JA24075, 24495. When the United States terminated its contracts with Hercules in December 1968, JA10471, 24075, Hercules decided to shut the plant down and seek a buyer or lessee, rather than rebuild its sales and distribution network.

In 1970, Hercules ceased production and, as the Court of Appeals found, "cleaned out all of its equipment and production vessels, [legally] buried its waste, and shipped

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[1] For example, in a case known as *Keister*, former plant workers and family members contended, *inter alia*, that Hercules had conducted ultrahazardous activities at the plant. Hercules presented extensive medical evidence showing that the representative plaintiffs had normally functioning immune systems and suffered from no injury caused by any chemicals. JA10241-44, 24581-83. The jury returned defense verdicts on all claims. In 1988, another jury returned verdicts for Hercules, finding that it had created no risk of harm for persons residing near the plant site or the two municipal landfills. The Eighth Circuit affirmed that judgment. *O'Dell v. Hercules, Inc.*, 904 F.2d 1194 (CA8 1990).

empty drums off-site." Pet. App. 4a. In 1971, Hercules leased the plant to another company, which later became Vertac, and Hercules required it to comply with all applicable laws and regulations. Vertac purchased the plant outright in 1976. *Id.* Under the agreement of sale, Hercules retained no liability for the business or the site, and Hercules believed that its financial responsibilities at the site were over.

In 1978, researchers from Dow Chemical published the first paper linking dioxin to any form of cancer (in this case, liver cancer in female, but not male, laboratory rats). JA24552. Vertac voluntarily ceased manufacturing 2,4,5-T on March 15, 1979. Pet. App. 4a. On March 4, 1980, EPA and the Arkansas Department of Pollution Control and Ecology ("ADPC&E") filed companion actions against Vertac (as a current operator of the site) and Hercules (as a former operator of the site) under the Resource Conservation and Recovery Act, 42 U.S.C. § 6973 *et seq.* ("RCRA"), seeking injunctive relief, primarily related to the storage and management of waste. One week later, EPA published regulations prohibiting Vertac from disposing of its drummed waste. 45 Fed. Reg. 15592 (Mar. 11, 1980). After a 4-day hearing, the District Court enjoined Vertac from releasing or disposing of its waste. EPA soon issued a final rule, and Vertac was thereafter prohibited from disposing of its waste drums. 45 Fed. Reg. 32676 (May 19, 1980).

Vertac (not Hercules) generated approximately 26,000 drums of 2,4-D waste between 1979 and 1986 under the supervision of the District Court, ADPC&E, and EPA. This waste did not even exist when Hercules sold the plant in 1976. Pet. App. 4a, 14a-15a. Vertac (not Hercules) also accumulated approximately 3,000 drums of 2,4,5-T waste (known as "stillbottoms"), the vast majority of which were generated after Vertac purchased the plant from Hercules. The courts below found that Vertac stored the stillbottoms in hopes of recycling the material. Pet. App. 16a, 31a; 247 F.3d

at 712; *United States v. Vertac Chemical Corp.*, 489 F. Supp. 870, 875 (E.D. Ark. 1980).[2]

In 1987, after seven years of constant supervision by the Court, EPA and ADPC&E, Vertac abandoned the site, leaving behind some 26,000 drums of 2,4-D waste, 3,000 stillbottom drums of 2,4,5-T waste, buildings, equipment, pallets, and trash. EPA took over the site, closed down all operations, and decided to incinerate the drums. Pet. App. 4a-6a.

EPA's decision to incinerate the 26,000 2,4-D drums abandoned by Vertac, however, was not driven by dioxin; rather, EPA's decision was driven by other risks posed by the drums, as well as the regulatory classification of the waste generated by Vertac. For example, EPA stated that, "[a]lthough cross-contamination with dioxin was a consideration in incineration, the driving forces were the ban on land disposal of F-listed wastes, the constant failure of the drums due to their corrosive contents, and the fire and explosion hazard presented by the drummed materials." JA22911.[3] EPA's Project Manager admitted that the agency "could not have disposed of that waste . . . without some type of treatment []regardless of the level of dioxin." EPA's own counsel stated that "it would not be relevant" whether the

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[2] The stillbottom drums were remediated in 1979-1980 under RCRA rather than CERCLA. Hercules and Vertac have already paid the RCRA remediation costs. The drums were stored in a specially built shed, and EPA stated in 1980 that they "pose no present threat to health or the environment." HADD0007. In the Court of Appeals, EPA admitted that the shed "stopped the drum failure." EPA Brief at 58. Far from finding that the stillbottom drums leaked, the District Court found in 1980 that the stillbottoms tended to harden into something like a rubber ball. HADD0006.

[3] "F-listed" wastes are defined as certain wastes listed by EPA at 40 C.F.R. § 261 App. VII, and in this case "the wastes generated were F-listed wastes, regardless of the presence of dioxin." 33 F. Supp.2d at 780.

drums contained dioxin because ADPC&E and EPA would have incinerated them anyway. JA27853.[4]

3. EPA's Claims Against Hercules.

Since 1987, EPA has never collected a penny from Vertac or anyone else directly responsible for the waste in question.[5] Instead, it has pursued a cost recovery action against Hercules as a "deep-pocket" target.

To be clear, Hercules does not challenge (and has not challenged) EPA's costs regarding waste generated or disposed of by Hercules. It is undisputed that Hercules cooperated fully with state and federal authorities, spent over $40 million in cleanup costs, remedied (under RCRA) the wastes lawfully buried onsite while it operated the plant, and later committed to operate a groundwater treatment facility until at least 2015. JA24196-99, 24597-615. None of EPA's costs at issue relate to Hercules' buried waste.

Rather, this case involves EPA's attempt to recover over $100 million in cleanup costs for waste generated and disposed of *by Vertac – after* Hercules had ceased its operations at the site. EPA sought recovery from Hercules for costs associated with the incineration of drums accumulated and disposed of by Vertac (not Hercules), operating under the supervision of the District Court, EPA,

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[4] Similarly, EPA concluded that the principal perceived threat to human health from the buildings related to asbestos, not dioxin. JA27254, 27259, 27371-72, 28265-66, 28268-69, 28350-51.

[5] EPA initially sought an injunction against Vertac's owners and companies to which they had conveyed assets. The District Court found that Vertac's owners had fraudulently conveyed assets to evade environmental liabilities. On appeal, the Eighth Circuit reversed because EPA had failed to serve process on the new parties. *United States v. Vertac Chemical Corp.*, 855 F.2d 856 (CA8 1988), *vacating*, 671 F. Supp. 595 (E.D.Ark. 1987). On remand, EPA settled with Vertac's assignees. *United States v. Vertac Chemical Corp.*, 756 F. Supp. 1215 (E.D. Ark. 1991), *aff'd*, 961 F.2d 796 (CA8 1992). However, EPA has never received any funds from that settlement.

and ADPC&E. EPA also sought costs from Hercules for the cleanup of Vertac's buildings, equipment, pallets and trash – including some items that did not even exist when Hercules sold the plant in 1976.

EPA's theory of liability was nothing more than a highly tenuous chain of but-for causation. EPA hypothesized that dioxin created during Hercules' former operation of the plant might have seeped into the soil and that, many years after Hercules sold the site, such soil might have been placed into some of the drums by Vertac employees and EPA contractors during drum cleanup and over-packing operations. As a result, the employees and contractors might have contaminated Vertac's 2,4-D drums that did not otherwise contain dioxin. Yet EPA ignored the fact that such cross-contamination, if it occurred at all, would have happened years after Hercules' involvement with the site had ceased, at a time when Hercules was powerless to control any site activities, and during a time when the site was under the supervision of the Court, EPA, and ADPC&E. Indeed, dumping soil into drums would have been directly contrary to the rules under which the cleanup proceeded. Instead, workers were directed to place contaminated soil into separate, special containers.[6]

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[6] EPA's theory was also a blatant post hoc rationalization. No EPA representative had ever suggested at the time of the cleanup that the drummed waste should be incinerated because of any dioxin-containing dirt that might be inside. No EPA witness ever offered such testimony, either. In fact, there was undisputed evidence that over 17,000 drums of 2,4-D waste (out of a total of 26,000) contained no dirt at all at the time Vertac abandoned the plant. JA24828-31. A 1989 test of a random 30-drum sample of 2,4-D waste indicated no detectable concentrations of dioxin, JA24259, 24870, and the uncontradicted evidence at trial demonstrated the invalidity of every analytical test purporting to find dioxin in the 2,4-D waste drums. JA24248, 24257, 24372, 27809-18, 27859-65, 28137, 28430.

Similarly, EPA speculated that dioxin created during Hercules' former operation of the plant might have remained in various production vessels after they were cleaned and sold to Vertac and might have contaminated Vertac's production many years later. But the record contained no evidence linking *Hercules'* dioxin to any such cross-contamination. Indeed, such a linkage would have been impossible to show, because after the sale Vertac used the production vessels over a 17–year period to manufacture millions of gallons of both 2,4,5-T and 2,4-D. During that time, Vertac mixed the contents of vessels used to make dioxin-containing 2,4,5-T with vessels used to make non-dioxin containing 2,4-D and thereby permanently altered the condition of the vessels as sold by Hercules many years earlier. Moreover, EPA's speculation was even more flimsy because, after Vertac abandoned the site in early 1987, the only testing of its production vessels was performed by a company convicted of dioxin testing fraud in another state, and EPA itself concluded that the test results were unreliable. JA28230-62. Furthermore, EPA's own evidence proved the thoroughness with which Hercules cleaned the equipment in 1970[7] and showed that any Hercules residual would have long been flushed out by Vertac's own production.[8] The District Court

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[7] An EPA witness testified that about 40 men worked on this "really big job" for six months after Hercules stopped its operations in 1970. JA12737-38, 12854. They removed the residues in the vessels with heated water and even fire hoses. They were careful to remove the sediments in the bottom of the vessels. JA27540-41. They disassembled and cleaned the process lines and disconnected the pumps. JA27522-24, 27540-42. The EPA witness added that Hercules was "very professional" and extremely safety conscious. JA12694-95,12707-09.

[8] EPA's Project Manager for incineration agreed that 10 consecutive batches of 2,4-D production would leave no more than a few parts per quadrillion of dioxin, even under the assumption of cross-contamination. Tab 115 to MSJ, at 137-148. Another EPA project manager concurred. JA15687-88. Such miniscule levels would have been orders of magnitude below any threshold of regulatory concern. At least five other expert

had itself rejected the "lingering dioxin" theory in 1980. HADD0018. In short, there was no evidence to support either of EPA's theories of liability against Hercules.

In addition, EPA based certain cleanup decisions on a scientifically dubious "cancer potency factor" for dioxin that the agency never subjected to rulemaking under the APA. The potency factor is a number used by EPA "to calculate the risk and to set dioxin cleanup standards." Pet. App. 20a.[9] EPA created its potency factor for dioxin in 1980, ratified it in a guidance document known as the 1985 Health Assessment, and has never altered it since. EPA explained that its decisions at the Vertac Site used the "[s]tandard cancer potency factors." JA22915. The agency stated: "In fact, if EPA had not applied the cancer potency factor uniformly and consistently across the country, . . . the agency could be considered to be acting arbitrarily and capriciously." JA21228. When Hercules proposed a different potency factor, EPA dismissed the proposal on the ground that it was "not in accordance with EPA policy." JA16528, 16902-03, 17041.

EPA has used the same potency factor across the nation in a uniform and consistent manner. JA16897-98. A survey of administrative Records of Decision ("RODs") at 35 dioxin sites, JA16899-902, 17159-540, showed that EPA used its "standard" potency factor at every site. JA22916-17. EPA could not identify *any* dioxin site since the enactment of CERCLA in 1980 where it had declined to use its standard potency factor. Nor could EPA offer a single piece of paper from the administrative records indicating an express intent to reserve discretion on the issue. To the contrary, EPA repeatedly admitted that it has applied the same potency

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witnesses agreed conceptually that "flushing" would occur relatively quickly.

[9] The cancer potency factor for dioxin is expressed as a specific number: 156,000 $(mg/kg\text{-}day)^{-1}$. JA16896.

factor uniformly and without exception at all sites where dioxin contamination was sufficient to affect remedial choices. JA16899, 17152. Because EPA has relied on an invalid rule to make its response choices, it is not entitled to recover its costs under 42 U.S.C. § 9613(j)(2).

4. The Decisions Below.

On October 23, 1998, the District Court granted summary judgment to EPA on the issue of liability and held Hercules jointly and severally liable under CERCLA for all of EPA's costs for the Vertac site and two municipal landfills. 33 F.Supp.2d 769. The court rejected Hercules' claim that the retroactive imposition of liability violated the Fifth Amendment. *Id.* at 785. The court also opined that the potency factor did not need to undergo notice-and-comment rulemaking because it was a statement of "policy." *Id.* at 779.

In 2001, the Eighth Circuit reversed the District Court's summary judgment, opining that "the district court's analysis of Hercules's divisibility arguments reflects a fundamental misunderstanding of the doctrine of divisibility. These legal errors clouded the court's view of the evidence supporting divisibility." 247 F.3d at 719. The Court of Appeals remanded for a trial on divisibility of harm without reaching the constitutional or potency factor issues.

On remand, the District Court held only a "limited evidentiary hearing," rather than a full trial, and refused to permit any discovery, even though no expert witness discovery had ever occurred. The court then took three and a half years to issue findings of fact, which essentially reiterated its previous conclusions. On March 30, 2005, the Court effectively reinstated its prior orders and imposed more than $100 million in retroactive liability against Hercules. Pet. App. 65a-66a.

This time, the Eighth Circuit affirmed. It adopted EPA's tenuous cross-contamination theory, opining that:

> Hercules caused dioxin to enter the environment, thereby disposing of the waste. That Vertac and the EPA overpacked leaking drums in an effort to contain further contamination of the site does not absolve Hercules of CERCLA liability. Accordingly, Hercules remains responsible for the ongoing contamination caused by the dioxin . . . .

Pet. App. 15a. The Court of Appeals rejected Hercules' retroactivity challenge on the ground that it was bound by circuit precedent holding that "CERCLA's retroactive application remained constitutional after *Eastern Enterprises*." *Id.* at 24a. In addition, the Eighth Circuit upheld EPA's potency factor for dioxin, even though it has never been subject to notice-and-comment rulemaking. *Id.* at 20a-21a.

REASONS FOR GRANTING THE WRIT

This case presents important issues of federal law. The first issue involves a $100 million question of constitutional retroactivity. The second involves a $100 billion question of agency accountability and the use of science in the regulatory process. On both questions, the judgment of the Eighth Circuit is in conflict with decisions of this Court and of Courts of Appeals outside the Eighth Circuit. This Court's plenary review is amply warranted.

I. REVIEW IS WARRANTED TO ADDRESS THE QUESTION OF THE CONSTITUTIONAL LIMITS ON RETROACTIVE LIABILITY.

This case involves the retroactive imposition of astronomical liability on a model corporate citizen that did nothing wrong, caused no harm, and yet has been unjustly saddled with over $100 million in cleanup costs based on circumstances outside its control – namely, the actions of a subsequent purchaser operating under the supervision of federal and state environmental agencies and under the jurisdiction of a federal court. It would be difficult to find a

more obvious example of fundamentally unfair retroactive liability. Although Hercules believes that many of the facts found by the District Court and Court of Appeals are clearly erroneous, that disagreement is not material to this petition. This Court's review is amply warranted even under the facts as found by the courts below.

A. The Eighth Circuit's Judgment Is Inconsistent With *Eastern Enterprises* Because It Failed To Apply The Factors Articulated By This Court.

Certiorari is necessary in this case because the Eighth Circuit's decision conflicts with *Eastern Enterprises v. Apfel*, 524 U.S. 498 (1998), which makes clear that, even where a party is causally responsible for a particular harm, a conclusion which in this case is exceptionally tenuous at best, a reviewing court *must* nonetheless apply a three-factor test to ensure that retroactive liability is reasonably foreseeable and proportionate to the party's conduct. The Court of Appeals in this case failed to undertake the constitutionally mandated inquiry – in square conflict with this Court's decision in *Eastern Enterprises*. Hercules has not asserted, and does not now assert, a facial challenge to the retroactive application of CERCLA. Rather, Hercules challenges the constitutionality of retroactive liability under CERCLA as applied to the facts of this case, in which the Eighth Circuit failed to undertake the requisite *Eastern Enterprises* analysis.

In *Eastern Enterprises*, this Court held that, under the Fifth Amendment, the Coal Industry Retiree Health Benefit Act of 1992, 26 U.S.C. §§ 9701-9722, could not be applied retroactively to require a company which had once owned a coal mining business to pay health care benefits to over 1,000 former employees of that business. Although there was no single opinion for the Court, Justice O'Connor, writing for a plurality that included Chief Justice Rehnquist, Justice Scalia, and Justice Thomas, distilled from prior case law three factors of "particular significance" to the Fifth Amendment inquiry: "the economic impact of the regulation, its interference with

reasonable investment backed expectations, and the character of the governmental action." 524 U.S. at 523-24.

The remaining Justices applied similar reasoning, although they would have framed the inquiry in terms of Fifth Amendment due process rather than the Fifth Amendment's Takings Clause. Their point was that such laws are constitutional only if the parties on whom liability is imposed are *responsible*, in some real sense, for the costs they are being asked to bear. *See* 524 U.S. at 539 (Kennedy, J., concurring in the judgment and dissenting in part); *id.* at 556-58 (Breyer, J., joined by Stevens, Souter, and Ginsburg, JJ., dissenting). The dissenters explained that, "like the plurality," they "would inquire if the law" as applied retroactively was "fundamentally unfair or unjust." *Id.* at 558. "[T]he Due Process Clause can offer protection against legislation that is unfairly retroactive . . . for . . . a law that is fundamentally unfair because of its retroactivity is basically arbitrary." *Id.* at 557 (Breyer, J., dissenting).

The Eighth Circuit's judgment conflicts with this Court's decision in *Eastern Enterprises*. The Eighth Circuit made no attempt to apply – or even to consider – any of the factors articulated by any of the Justices in *Eastern Enterprises*. It never inquired as to "the economic impact of the regulation," 524 U.S. at 523, even though the financial impact on Hercules was distinctly more severe than the $50-100 million liability at issue in *Eastern Enterprises*. After all, Eastern Enterprises had earned substantial profits from coal mining from 1947-1964 and from its subsidiary thereafter, which more than offset the retroactive liability imposed by the government. *See* 524 U.S. at 516. Here, by contrast, it is undisputed that Hercules lost over $3 million on its decade of operations (JA20666-68) and has already spent $40 million on cleanup separate and apart from the amounts sought by EPA.

Similarly, the Eighth Circuit never inquired as to the second factor cited by the *Eastern Enterprises* plurality – "interference with reasonable investment backed

expectations." 524 U.S. at 523-24. Even on the facts found by the courts below, this factor should have led the Eighth Circuit to invalidate the astronomical liability imposed on Hercules. The District Court acknowledged that "Uniroyal and Hercules are left 'holding the bag' for Vertac, who at least arguably caused the greatest amount of harm." *United States v. Vertac Chemical Corp.*, 79 F.Supp.2d 1034, 1036 (ED Ark. 1999). Hercules' operations at the site ceased a decade before CERCLA took effect on December 11, 1980. *See* 42 U.S.C. § 9652(a). Hercules had completely severed its connection with the plant before researchers published the first paper linking dioxin to any form of cancer in 1978. Even if dioxin in some of the dirt at the Vertac site had been the trigger for the decision to incinerate the drums, and even if some of the dioxin had originated during Hercules' prior operations, Hercules plainly had no ability to prevent Vertac or EPA's contractors from violating cleanup protocols by placing the dirt into Vertac drums, at a time when the District Court, EPA and ADPC&E were supervising Vertac. Further, EPA sought to recover costs for all of Vertac's trash, pallets, buildings, tanks, vessels, and pipes, whether or not they existed when Hercules sold the plant in 1976, and whether or not dioxin was a factor in EPA's decision to remediate them. The enormous retroactive liability imposed here thus profoundly interferes with Hercules' reasonable investment-backed expectations.

Until now, the accepted rule has been that the sale of a useful product, building, or piece of equipment does not create CERCLA liability, even if it contains a hazardous substance. *G.J. Leasing Co., Inc. v. Union Elec. Co.*, 54 F.3d 379, 384 (CA7 1995). Thus, in *G.J. Leasing*, Judge Posner, writing for the court, held that the seller of a plant was not liable for the release of asbestos fibers caused by a third-party contractor's "ham-handed" job of dismantling the facility, years after the sale. *Id.* at 385. Judge Posner explained that, "[i]t seems to us very odd, even in Superfund

Cloudcuckooland, to attribute the negligent, unforeseeable conduct of the buyer's agents to the seller." *Id.* *See also ABB Indus. Sys., Inc. v. Prime Tech., Inc.*, 120 F.3d 351, 359 (CA2 1997) (holding prior owners not liable despite passive spread of contamination); *United States v. CDMG Realty Co.*, 96 F.3d 706, 722 (CA3 1996) (same).

The Eighth Circuit's ruling thus creates a circuit split, as well as a significant shadow of uncertainty over long-completed transactions that were undertaken against an entirely different background understanding. No one reasonably expected that CERCLA liability could arise in the context of the sale of useful equipment to a purchaser who then employed that equipment to manufacture products and create waste. Heretofore, no court has ever held that the sale of an operating plant constituted a "disposal" of material inside the useful equipment. The decision below threatens to upset the settled expectations of former owners who will be shocked to discover that CERCLA liability may arise even when the subsequent actions of their purchasers are supervised by the government.

Imposing liability on Hercules would be every bit as unjust as imposing it on the Department of Defense ("DOD"), which initially developed the site in the 1930s as a munitions plant and owned it during World War II. Yet DOD has been held not liable for any costs because it did not control the disposal of waste during the Hercules years. *United States v. Vertac Chemical Corp.*, 46 F.3d 803, 809 (CA8), *cert. denied*, 515 U.S. 1158 (1995). Similarly, this Court has held that the government may not be held responsible for Hercules' costs incurred in defending and settling tort claims related to Agent Orange, even though DOD prescribed the formula and detailed specifications for manufacture pursuant to the Defense Production Act of 1950, 64 Stat. 798, as amended, 50 U.S.C.App. § 2061 *et seq.* *See Hercules v. United States*, 516 U.S. 417, 419 (1996). Precisely the same reasoning shows

the arbitrariness and disproportionality of imposing over $100 million in costs on Hercules.

The Eighth Circuit also ignored the third *Eastern Enterprises* factor – "the character of the governmental action." 524 U.S. at 524. In *Eastern Enterprises*, the statute's remedial payment scheme was neither wholly unfamiliar to, nor unforeseeable by, Eastern, which had operated its former coal mining business against the background understanding of a 1946 labor agreement, a 1947 retirement fund, and a 1950 benefit plan. *See* 524 U.S. at 505-08. Here, by contrast, the character of the governmental action is extraordinary. "[P]arties could not be expected to have foreseen CERCLA before it was enacted." *Purolator Prods. Corp. v. Allied-Signal, Inc.*, 772 F. Supp. 124, 132 (W.D.N.Y. 1991). There is no way that Hercules could have foreseen that it could one day be held liable for over $100 million in costs to clean up waste it did not create. Even the dissenting Justices in *Eastern Enterprise* would find the imposition of CERCLA liability unconstitutional in this case because Hercules is simply not *responsible* in any real sense for the costs which Hercules is being asked to bear. *See* 524 U.S. at 556-58, 566-68 (Breyer, J., joined by Stevens, Souter, and Ginsburg, JJ., dissenting).

This case is a good vehicle to reaffirm the constitutional principles governing retroactivity because the constitutional violation here is plainer and more obvious than in *Eastern Enterprises*. The Eighth Circuit's failure to apply — or even to consider — the three relevant factors is flatly inconsistent with this Court's governing precedent.

B. The Eighth Circuit's Judgment Is Inconsistent With *Eastern Enterprises* Because It Ignored the Difference Between Facial and As-Applied Challenges.

Instead of applying the *Eastern Enterprises* factors, the Court of Appeals relied on prior Eighth Circuit caselaw

upholding the retroactive application of CERCLA in a different context. The Court of Appeals stated that "[w]e previously resolved this exact issue in *United States v. Dico*, in which we held that CERCLA's retroactive application remained constitutional after *Eastern Enterprises*." Pet. App. 24a. The Court of Appeals thus interpreted Eighth Circuit law as holding that all retroactive impositions of CERCLA liability are *ipso facto* constitutional, regardless of the factual context. The Court treated the retroactivity issue as one solely of CERCLA's *facial* constitutionality – ignoring the principle that facial validity does not preclude an as-applied challenge in a given case. *E.g.*, *Wisconsin Right to Life, Inc. v. FEC*, 126 S.Ct. 1016, 1018 (2006) (per curiam).[10]

The Eighth Circuit's judgment is squarely inconsistent with *Eastern Enterprises*, where all nine Justices concluded that a reviewing court must engage in a fact-intensive inquiry to consider the particular facts and circumstances of individual statutory applications in determining whether the retroactive imposition of liability violates the Fifth Amendment. *See* 524 U.S. at 523, 528-29 (plurality); *id.* at 549-50 (opinion of Kennedy, J.); *id.* at 559, 566-68 (Breyer, J., dissenting).

The Court of Appeals created a further conflict with this Court's precedent by conflating causation with the constitutional command of *Eastern Enterprises*. The Eighth Circuit opined that, once Hercules "caused dioxin to enter the

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[10] The Eighth Circuit's reliance on *United States v. Dico*, 266 F.3d 864 (CA8 2001), demonstrates that it has created a rule that the retroactive application of CERCLA is constitutional regardless of the facts of the individual case and the factors prescribed in *Eastern Enterprises*. *Dico* involved a completely different situation from this case. There, the defendant had been *directly* responsible for cleanup costs because it "had for many years used [a solvent] for degreasing and other industrial applications" and released it onto its own site and into the public water supply. 266 F.3d at 868. Unlike Dico, Hercules' connection to the drums and other wastes created and abandoned by Vertac, a subsequent purchaser of the business, was, at best, tenuous.

environment," it would remain responsible for any "ongoing contamination caused by the dioxin." Pet. App. 15a. But that sort of "but-for" reasoning is inconsistent with *Eastern Enterprises*, which makes clear that the constitutional question is not coterminous with the issue of causation. After all, Eastern Enterprises itself was linked to the injury the Coal Act sought to remedy: the company had employed the miners involved, had benefited from their past labor, and was at least partially responsible for their health conditions. Yet retroactive application of the statute to Eastern Enterprises was held unconstitutional. Indeed, all nine Justices in *Eastern Enterprises* made clear that the Fifth Amendment may sometimes preclude the imposition of disproportionate retroactive liability *even if a party is somehow causally responsible for the harm in question*. Eastern "could not have contemplated liability" of the magnitude it faced. 524 U.S. at 531. Even though there was a causal link, it was too "tenuous." *Id.*; *see also id.* at 549-50 (opinion of Kennedy, J.); *id.* at 558-59, 566-68 (Breyer, J., dissenting). The same reasoning is applicable here, because any connection between Hercules and the costs in question was too remote, too tenuous, and too unforeseeable to support the astronomical retroactive liability imposed. This Court's review is urgently needed.

C. The Confusion and Division Among the Lower Courts Regarding *Eastern Enterprises* Underscore the Need for Certiorari.

A circuit conflict is not a prerequisite to certiorari here. After all, prior to *Eastern Enterprises* no lower court had invalidated the retroactive application of the Coal Act on constitutional grounds — indeed, an unbroken string of six appellate decisions had upheld the retroactive application of the Coal Act, and this Court had denied certiorari in three of those cases. *See* 524 U.S. at 519 n.4.

Nevertheless, there is confusion in the circuits regarding the status of *Eastern Enterprises*. Just as the Eighth Circuit

refused to apply the *Eastern Enterprises* factors, other circuits have ignored the mandate of *Eastern Enterprises*. In particular, the Second, Third, Fourth, Sixth, and D.C. Circuits have limited *Eastern Enterprises* to its facts on the misguided theory that there was no common ground between the plurality and Justice Kennedy's separate opinion. As the Second Circuit has explained:

> Because the substantive due process reasoning presented in Justice Kennedy's concurrence is not a logical subset of the plurality's takings analysis, no "common denominator" can be said to exist among the Court's opinions. The only binding aspect of such a splintered decision is its specific result, and so the authority of *Eastern Enterprises* is confined to its holding that the Coal Act is unconstitutional as applied to Eastern Enterprises.

United States v. Alcan Aluminum Corp., 315 F.3d 179, 189 (CA2 2003), *cert. denied*, 540 U.S. 1103 (2004).[11]

These dismissive holdings cannot be squared with decisions in other circuits applying *Eastern Enterprises*. For example, in *U.S. Fidelity & Guar. Co. v. McKeithen*, 226 F.3d 412, 416-20 (CA5 2000), the Fifth Circuit applied the three *Eastern Enterprises* factors to hold that a state workers' compensation statute altering a funding formula violated the

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[11] *See also Franklin County Convention Facilities Auth. v. American Premier Underwriters, Inc.*, 240 F.3d 534, 552 (CA6 2001) ("*Eastern Enterprises* has no precedential effect on this case because no single rationale was agreed upon by the Court."); *Association of Bituminous Contractors, Inc. v. Apfel*, 156 F.3d 1246, 1253-58 (CADC 1998) ("In short, the government is correct in stating that the only binding aspect of *Eastern Enterprises* is its specific result – holding the Coal Act unconstitutional as applied to Eastern Enterprises."); *Anker Energy Corp. v. Consolidated Coal Co.*, 177 F.3d 161, 169-74 (CA3) (quoting D.C. Circuit), *cert. denied*, 528 U.S. 1003 (1999); *A.T. Massey Coal Co., Inc. v. Massanari*, 305 F.3d 226, 236-37 (CA4 2002), *cert. denied*, 538 U.S. 1012 (2003) (citing the D.C. and Third Circuits).

Fifth Amendment as applied to pre-enactment insurance contracts of insurers who had withdrawn from the state market or had substantially reduced their underwriting in the state. The First Circuit has also held that *Eastern Enterprises* has precedential effect with respect to Takings Clause claims. *Patella v. Ret. Bd. of the R.I. Employees' Ret. Sys.*, 173 F.3d 46, 58 (CA1 1999).[12]

The misguided attempt by the Eighth Circuit and other circuits essentially to ignore *Eastern Enterprises* warrants this Court's plenary review. Justice Kennedy represented the fifth vote in *Eastern Enterprises* holding the retroactive application of the Coal Act unconstitutional under the Fifth Amendment. "Where a Justice or Justices concurring in the judgment in such a case articulates a legal standard which, when applied, will necessarily produce results with which a majority of the Court from that case would agree, that standard is the law of the land." *Planned Parenthood of Southeastern Pa. v. Casey,* 947 F.2d 682, 693 (CA3 1991),

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[12] *See also S & M Brands, Inc. v. Summers*, 2005 WL 3160869, *9 (M.D. Tenn. 2005) (relying on *Eastern Enterprises* to hold that the state violated due process regarding escrow of certain funds); *Golan v. Ashcroft*, 310 F. Supp.2d 1215, 1220 (D. Colo. 2004) (focusing on "Justice Kennedy's concurrence in *Eastern Enterprises* for the proposition that retroactive legislation that unfairly burdens individuals and disrupts settled expectations is arbitrary and, thus, violates due process," in order to deny motion to dismiss due process claim). Commentators have expressed the same view. *See, e.g.*, Bruce Howard, "A New Justification for Retroactive Liability in CERCLA: An Appreciation of the Synergy Between Common and Statutory Law," 42 ST. LOUIS U. L.J. 847, 847 n.a1 (1998) ("[T]he decision in *Eastern Enterprises* makes it clear that courts must be prepared to find that in any given case the particular facts of CERCLA liability, if enforced against an unfortunate party to the limits of the strict, joint, several and retroactive law, will run afoul of the takings and due process clauses of the Constitution."); Jan G. Laitos, "The New Retroactivity Causation Standard," 51 ALA. L. REV. 1123, 1129 n.35 (2000) ("The *Eastern Enterprises* result raises questions about the constitutional validity of CERCLA"); Daniel E. Troy, "Retroactive Legislation" 85 (American Enterprise Institute 1997) (arguing that retroactive application of CERCLA may be unconstitutional).

modified on other grounds, 505 U.S. 833 (1992) (citing *Marks v. United States*, 430 U.S. 188, 193 (1977)); *see Grutter v. Bollinger*, 539 U.S. 306, 325 (2003).

Nor is it correct to suggest that there was no common rationale in *Eastern Enterprises*. In the opening paragraph of his separate opinion, Justice Kennedy went out of his way to underscore that he was "in full accord with many of the plurality's conclusions." 524 U.S. at 539. He agreed that "[t]he plurality's careful assessment of the history and purpose of the statute in question demonstrates the necessity to hold it arbitrary and beyond the legitimate authority of the Government to enact." *Id.* The fact that Justice Kennedy viewed the case through the lens of the Fifth Amendment's Due Process Clause rather than the prism of the Takings Clause neither vitiates the Court's Fifth Amendment holding nor transforms a 5-4 decision into a 4-1-4 ruling. If it did, the *Eastern Enterprises judgment* would not have *reversed* the decision below but would instead have *affirmed* that decision by an equally divided Court. Indeed, even the dissenters noted that the same three factors articulated by the plurality could properly be applied in the due process rather than the takings context. 524 U.S. at 567 (*citing Connolly v. Pension Benefit Guaranty Corp.*, 475 U.S. 211, 225-27 (1986)). No Justice in *Eastern Enterprises* disputed that "an unfair retroactive assessment of liability upsets settled expectations, and . . . thereby undermines a basic objective of law itself," or questioned the need to inquire whether a law "is fundamentally unfair or unjust" as applied in a particular case. 524 U.S. at 558 (Breyer, J., dissenting).

Accordingly, this Court has continued to treat *Eastern Enterprises* as binding precedent.[13] Justice Kennedy has

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[13] *See, e.g., Tahoe-Sierra Preservation Council, Inc. v. Tahoe Regional Planning Agency*, 535 U.S. 302, 324 (2002); *Barnhart v. Peabody Coal Co.*, 537 U.S. 149, 174 (2003) (Scalia, J., joined by O'Connor and Thomas, JJ., dissenting) ("We have held that the Commissioner's use of this power [to require coal companies to pay health benefits] violates the

continued to describe his separate opinion in *Eastern Enterprises* as calling for "heightened scrutiny for retroactive legislation under the Due Process Clause."[14] This case is an ideal vehicle for this Court to clarify the status of *Eastern Enterprises* and the proper application of the factors articulated in that decision.

II. REVIEW IS WARRANTED FOR THE SEPARATE REASON THAT EPA'S USE OF ITS POTENCY FACTOR IS INCONSISTENT WITH THE APA AND WITH DECISIONS OF OTHER U.S. COURTS OF APPEALS.

Certiorari should be granted for the independent reason that the Eighth Circuit's decision with respect to the potency factor for dioxin involves a question of exceptional importance and is inconsistent with the holdings of other circuits, particularly the D.C. Circuit. There is no dispute that, for the last 25 years, EPA has applied its "standard" potency factor at every site at which dioxin affected remedial choices. In fact, EPA has affirmatively stated that it would be "arbitrary and capricious" for the agency *not* to do so. There is no evidence that EPA retained any discretion to use any other number. It rejected Hercules' proposed alternative on the ground that it was "not in accordance with EPA policy." JA16528, 16902-03, 17041. Thus, while parties were free to propose alternative potency factors, EPA announced that it would not consider them. JA16164-66. Reminiscent of the imaginary "dirt-eating children" that Justice Breyer has mocked so forcefully in similar contexts, EPA coupled its

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Constitution to the extent it imposes severe retroactive liability on certain coal companies.") (citing *Eastern Enterprises*).

[14] *Kelo v. City of New London*, 125 S.Ct. 2655, 2670 (2005) (Kennedy, J., concurring); *Lingle v. Chevron U.S.A. Inc.*, 544 U.S. 528, 548 (2005) (Kennedy, J., concurring) (citing his *Eastern Enterprises* concurrence for the proposition that "a regulation might be so arbitrary or irrational as to violate due process").

potency factor with absurd exposure assumptions in order to justify its response actions in this case.[15]

Under the APA, 5 U.S.C. § 553(b), an agency is required to submit legislative rules to notice-and-comment rulemaking. Yet the Eighth Circuit held that the potency factor was exempt from this requirement because it was contained in what was "at most only a technical and advisory report." Pet. App. 21a (quoting the District Court). The Court of Appeals added that EPA had considered Hercules' comments on the potency factor and rejected them because they "were contrary to EPA's guidance." *Id.* (citation omitted). The court found it immaterial that EPA failed to cite a single deviation from its dioxin "policy" since it was developed in 1980.

The Eighth Circuit's decision is inconsistent with administrative law rulings in other circuits (particularly in the D.C. Circuit) holding that an agency's uniform and inflexible practice creates a legislative rule and triggers the need for notice-and-comment rulemaking. The bare assertion by an agency in a litigation brief that it has reserved discretion on the matter is immaterial. The Eighth Circuit's reasoning that an agency can avoid rulemaking by purporting to consider

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[15] *See United States v. Ottati & Goss, Inc.*, 900 F.2d 429, 441 (CA1 1990) (Breyer, J.) (affirming lower court's refusal to accept EPA's target for cleaning up soil contaminated with PCBs). *See also* BREAKING THE VICIOUS CIRCLE, at 12 (spending $9.3 million to protect "non-existent dirt-eating children" is the problem of "the last 10 percent"). In this case, EPA assumed that: (1) children would live every moment of their lives between the ages of 2 and 5 on the Jacksonville landfill, (2) from ages 6 through 12, children would spend 56% of their time on the landfill, (3) teenagers would never leave the landfill, and (4) adults would then spend the next 50 years of their lives moored to the landfill. JA16341, 16859. EPA made these assumptions despite the fencing around both the two landfills, the low and declining population densities in the area, the poor drainage and standing water, the location of the landfills in the hundred-year floodplain (which would likely preclude financing for homes), and the fact that no one had ever lived on either landfill. JA16307-08, 16358, 16979-80.

comments, and then invariably rejecting them as contrary to agency policy, is inconsistent with this Court's admonition that "it is the substance of what the [agency] has purported to do and has done which is decisive." *Columbia Broadcasting System, Inc. v. United States*, 316 U.S. 407, 416 (1942).

As the D.C. Circuit has declared, agency actions speak louder than words: If the agency "will automatically decline to entertain challenges to the statement's position, then the statement is binding." *McLouth Steel Prod. Corp. v. Thomas*, 838 F.2d 1317, 1320 (CADC 1988). In *McLouth*, the D.C. Circuit rejected EPA's assertion that it did "not consider itself . . . bound" by a model used to predict levels of hazardous waste and that it "retained discretion to deviate from its use." *Id.* (internal quotation marks and citation omitted). The D.C. Circuit held that agency practice proved otherwise and that EPA had created a legislative rule requiring rulemaking: "More critically than EPA's language adopting the model, its later conduct applying it confirms its binding character." *Id.* at 1321. The D.C. Circuit noted that EPA was "close-minded and dismissive in its denial of a delisting petition," *id.*; "the model is not just a 'musing[ ] about what the [agency] might do in the future'"; "EPA was simply unready to hear new argument"; and "EPA has evidenced almost no readiness to reexamine the basic propositions that make up the" model. *Id.* (citation omitted; brackets in original). The D.C. Circuit concluded that "[t]he model thus created a norm with 'present-day binding effect,'" even though EPA pointed to four out of 100 cases where it deviated from the model. *Id.* at 1321.

Similarly, in *United States Tel. Ass'n v. FCC*, 28 F.3d 1232, 1233 (CADC 1994), the D.C. Circuit rejected an agency's claim that a schedule of penalties was a mere "policy statement" because the agency's practice showed that it "intend[ed] to use that framework to cabin its discretion." *Id.* at 1233. A "policy statement," the court explained, is merely "an indication of an agency's current position on a

particular regulatory issue." *Id.* The court noted that "[t]he schedule of fines has been employed in over 300 cases and only in 8 does the Commission even claim that it departed from the schedule." *Id.* It was, therefore, a rule.

By contrast, in this case EPA has *never* identified any instance where it deviated from its potency factor in choosing a dioxin remedy. This case is indistinguishable from *General Elec. Co. v. EPA*, 290 F.3d 377, 384-85 (CADC 2002), where the D.C. Circuit vacated an EPA "guidance document" with a cancer potency factor for polychlorinated biphenyls ("PCBs"). The court held that the guidance document was a legislative rule, not a policy statement, and therefore should have been issued only with the benefit of notice and comment rulemaking. *Id.* at 383-85. A guidance document that the agency "administers with binding effect" qualifies as a rule, and the agency "must observe the APA's legislative rulemaking procedures." *Id.* at 383 (citation and internal quotation marks omitted). The D.C. Circuit stated that "[o]ur cases likewise make clear that an agency pronouncement will be considered binding if it . . . is applied by the agency in a way that indicates it is binding." *Id.*. As in *GE*, the relevant document in this case is a guidance document, namely the 1985 Health Assessment, and as in *GE*, there is no evidence in the record that EPA retained any discretion whatsoever to alter the potency factor. If anything, this case is even easier than *GE*: whereas EPA's potency factor for dioxin has remained unchanged for more than two decades, it appears that EPA's factor for PCBs has diminished slightly over the last twenty years. *Compare* 290 F.3d at 379 (factors ranging from 0.04 to 2.0 $(mg/kg/day)^{-1}$) *with* JA22727 (PCBs listed at 4.34 $(mg/kg/day)^{-1}$)).

The fact that the potency factor is a number does not render it any less a legislative rule. Other circuits have often found that "rules establishing fixed criteria to control the agencies' decisions" amount to legislative rules. *Avoyelles Sportsmen's League, Inc. v. Marsh*, 715 F.2d 897, 910 (CA5

1983). For example, in *Community Nutrition Institute v. Young*, 818 F.2d 943, 950 (CADC 1987) (per curiam), the D.C. Circuit held that an FDA "action level" of 20 parts per billion (ppb) of the contaminant aflatoxin in food was a legislative rule. Even though the FDA did not publish the aflatoxin regulation in the C.F.R., and even though exceeding the "action level" would not, without more, establish a statutory violation, the Court of Appeals was "convinced that FDA has bound itself," and "this type of cabining of an agency's prosecutorial discretion can in fact rise to the level of a substantive, legislative rule." *Id.* at 948. In *Batterton v. Marshall*, 648 F.2d 694 (CADC 1980), the D.C. Circuit held that a statistical formula for allocating unemployment aid required rulemaking. The court explained that "[a] general statement of policy" is "like a press release." *Id.* at 706. "The statistical methodology at issue here does not merely represent DOL's future intention. It presents the course the agency has selected and followed . . . ." *Id.* (internal quotation marks omitted). The Eighth Circuit's holding is inconsistent with the D.C. Circuit's well-reasoned analysis.[16]

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[16] *See also Environmental Integrity Project v. EPA*, 425 F.3d 992, 998 (CADC 2005) (EPA's interpretations required notice and comment rulemaking because they were intended to be "bind[ing]"); *Alaska v. DOT*, 868 F.2d 441, 447 (CADC 1989) (finding that rules were legislative rather than interpretive because they were "tests to shape and channel agency enforcement"); *Jerri's Ceramic Arts v. Consumer Product Safety Comm'n*, 874 F.2d 205, 208 (CA4 1989) ("the Commission has made a legislative rule and called it an interpretation"); *National Knitwear Manufacturers Ass'n v. Consumer Products Safety Comm'n*, 666 F.2d 81, 83 (CA4 1981) (agency's "characterization of its statement as an exposition of its policy or interpretation of the standard does not preclude our finding that it is something more"); *Pickus v. United States Board of Parole*, 507 F.2d 1107, 1113 (CADC 1974) (Parole Board's use of guidelines established specific factors for determining parole eligibility and therefore required rulemaking: "they are self imposed controls over the manner and circumstances in which the agency will exercise its plenary power"; "they thus narrow [agency's] field of vision, minimizing the influence of other factors and encouraging decisive reliance upon factors whose significance might have been differently articulated").

The question presented is a vital one. The legislative history of the APA explains that "public participation . . . in the rulemaking process is essential in order to permit administrative agencies to inform themselves, and to afford safeguards to private interests." S. Rep. No. 248, 79th Cong., 2d Sess. 19-20 (1946). "In light of the importance of these policy goals of maximum participation and full information," *American Hospital Association v. Bowen,* 834 F.2d 1037, 1044-45 (CADC 1987), any exemption from the rulemaking requirement "must be narrowly construed." *United States v. Picciotto*, 875 F.2d 345, 347 (CADC 1989). "A rulemaking would force important issues into full public display and in that sense make for more responsible administrative action." *National Family Planning & Reproductive Health Ass'n, Inc. v. Sullivan*, 979 F.2d 227, 241 (CADC 1992) (internal quotation marks omitted).

Nothing about this case would require this Court to second-guess the agency on a substantive matter within its expertise. Rather, this case involves the enforcement of a *procedural* requirement at the heart of the APA: the need for legislative rules to undergo public scrutiny as part of notice-and-comment rulemaking.

A legislative rule is one that "provide[s] the policy decision." *Chamber of Commerce of the U.S. v. OSHA*, 636 F.2d 464, 469 (CADC 1980). In this case, EPA has used the potency factor to make a hidden policy choice and to impose over $100 billion in regulatory compliance costs across the country. JA16903, 17713. By labeling its rule as mere "guidance," EPA has cynically evaded accountability for its policy choice, shielded itself from notice-and-comment rulemaking, and evaded judicial review. EPA was harshly criticized by some of the nation's leading toxicologists in a brief amici curiae filed in the Eighth Circuit. *See* Brief of John Doull, et al. (Oct. 3, 2005). These eminent scientists attacked EPA's uniform application of its potency factor and its persistent refusal to consider the persuasive and mounting

body of scientific information that supports a different approach to dioxin risk assessment and regulation. They noted that EPA's own Science Advisory Board has criticized the model creating the agency's potency factor — a criticism recently echoed by the National Academy of Sciences. *See* Health Risks from Dioxin and Related Compounds: Evaluation of the EPA Reassessment (July 11, 2006).

This Court should grant review to determine the lawfulness of a regulatory regime that permits the EPA to set a $100 billion national policy without responding to contrary scientific information or subjecting its decisions to public rulemaking, scientific scrutiny, and judicial review.

CONCLUSION

The petition for writ of certiorari should be granted.

Respectfully submitted,

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APPENDIX A: OPINION OF THE U.S. COURT OF APPEALS FOR THE EIGHTH CIRCUIT DATED JULY 13, 2006

United States Court of Appeals,
Eighth Circuit.

UNITED STATES of America, Plaintiff/Appellee,
Arkansas Department of Pollution Control and Ecology,
Plaintiff,
v.
VERTAC CHEMICAL CORPORATION, Defendant,
Hercules, Inc., Defendant/Appellant,
Inter-Ag Corporation; Department of Defense; Dow Chemical Corporation;
Velsicol Chemical Corporation; John Does, 1-5; Chemtura Corporation, formerly
known as Crompton Co., formerly known as CIE, formerly known as Uniroyal
Chemical Limited, Defendants,
John Doull, Ph.D., M.D.; Karl K. Rozman, Ph.D.; William J. Waddell, M.D.; K.
Roger Hornbrook, Ph.D.; Daniel M. Byrd, III, Ph.D., D.A.B.T.; Robert Golden,
Ph.D.; B. Frank Vincent, Ph.D.; American Council on Science and Health, Amici
on behalf of Appellant.
United States of America, Plaintiff/Appellee,
Arkansas Department of Pollution Control and Ecology,
Plaintiff,
v.
Vertac Chemical Corporation; Hercules, Inc.; Inter-Ag Corporation;
Department of Defense; Dow Chemical Corporation; Velsicol Chemical
Corporation; John Does, 1-5; Defendants,
Crompton Co./CIE, Defendant/Appellant.

Nos. 05-3147, 05-3153.

Submitted: March 13, 2006.
Filed: July 13, 2006.

Before Wollman, Fagg, and Riley, Circuit Judges.

Wollman, Circuit Judge.

Hercules, Inc. (Hercules) and Crompton Co./Cie (Uniroyal)[1] raise constitutional claims and argue that the district court[2] erred in assigning and apportioning liability for environmental cleanup costs pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. § § 9601-0675, as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), Pub.L. No. 99-499, 11 Stat. 1613. We affirm.

I. BACKGROUND

This case involves twenty-six years of litigation and numerous district court and appellate opinions, both published and unpublished. At issue is the cost the United States has incurred in its environmental cleanup efforts at the Vertac Chemical Plant site in Jacksonville, Arkansas (the Jacksonville site or the site). The full procedural and factual history of this case has been discussed in several previous decisions. This opinion will address the relevant portions of each.

A. Factual History

The Jacksonville site was originally developed by the federal government in the 1930s as a munitions factory. In

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[1] As of January 30, 2001, Uniroyal Chemical Limited changed its name to Crompton Co./Cie. For consistency, we will use Uniroyal throughout this opinion.

[2] The Honorable George Howard, Jr., United States District Judge for the Eastern District of Arkansas. The Honorable George Howard, Jr., United States District Judge for the Eastern District of Arkansas.

the late 1940s, the site was sold to Reasor-Hill Corporation (Reasor-Hill), a now-defunct company. Reasor-Hill first manufactured various pesticides, but began manufacturing phenoxy herbicides in 1958. These herbicides included dichlorophenoxyacetic acid (2,4-D) and trichlorophenoxyacetic acid (2,4,5-T), synthetic hormones that kill weeds or brush by accelerating growth to the point of natural death. Although these herbicides biodegrade into harmless substances, the manufacture of 2,4,5-T (but not 2,4-D) creates a toxic byproduct that is now viewed as hazardous to humans, 2,3,7,8-tetrachlorodibenzo-p-dioxin (dioxin). While Reasor-Hill operated the site, an unknown quantity of these and other untreated chemical wastes from the production processes flowed through cooling ponds on the west side of the plant into a nearby stream, Rocky Branch Creek. Other wastes were stored in drums stacked in a field on the site.

In 1961, Hercules bought the site and continued to manufacture herbicides, including 2,4-D and 2,4,5-T, at the plant until 1970. During this period, Hercules sold the bulk of its product to the United States Department of Defense as the defoliant Agent Orange, a herbicide made from a mixture of 2,4-D and 2,4,5-T that was used in Vietnam to clear jungle undergrowth.

Soon after Hercules took over the site, it buried the deteriorating drums left by Reasor-Hill in unlined trenches in the southeast corner of the site. Until late 1964, Hercules continued Reasor-Hill's practice of discharging untreated waste water directly into Rocky Branch Creek. Hercules then constructed a waste water pretreatment system, but the system did not remove dioxin. It consisted of a neutralization trench designed to reduce the acidity of the water, an equalization basin designed to stabilize the rate of flow into the City of Jacksonville's sewage system, and a pump and pipe to deliver the treated water to the sewage system. The system's equalization basin frequently overflowed during heavy

rainfalls, and it leaked.

After it learned of the toxicity of dioxin in 1965, Hercules instituted a toluene extraction process designed to remove organic impurities from 2,4,5-T products. This process yielded residue (stillbottoms) containing extremely high levels of dioxin. Hercules placed this residue in drums, some of which it buried at the site and some of which it disposed of at a nearby landfill. Hercules acknowledges that numerous leaks and spills occurred during its operation of the site. When the drums leaked in the process area before being transported to the drum burial pit, Hercules's practice was to place any contaminated soil into the drum.

In 1970, Hercules ceased production at the site. Hercules cleaned out all of its equipment and production vessels, buried its waste, and shipped empty drums off-site. In 1971, it leased the facility to Transvaal, Inc., which later became Vertac Chemical Corp. (Vertac).[3]

Vertac continued to manufacture 2,4-D and 2,4,5-T and followed Hercules's practice of burying most of the waste. In 1975, however, Vertac began shipping its 2,4-D waste to off-site landfills and began to store its 2,4,5-T stillbottoms above ground with the hope that the waste would someday be recycled. In 1976, Vertac purchased the site from Hercules. Vertac voluntarily ceased manufacturing 2,4,5-T and 2,4,5-TP on March 15, 1979.

On February 26, 1980, the United States Environmental Protection Agency (EPA) issued a proposed rule under the Toxic Substances Control Act to prevent Vertac from disposing of the dioxin from the Jacksonville site. This rule, known as the Vertac Rule, became final later that year and prohibited the off-site disposal of 2,4-D wastes that contained dioxin. If Vertac could show that a batch of 2,4-D produced

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[3] Transvaal reorganized as Vertac in 1976. In this opinion, we will refer to both corporations as Vertac.

waste that was free of dioxins, it could dispose of that waste and all subsequent 2,4-D waste off-site.

According to testimony at the hearing on the proposed rule, Vertac had approximately 3200 drums of wastes resulting from the production of 2,4-D. The first set of samples taken from seven hundred drums of waste resulting from the initial production of 2,4-D revealed dioxin levels of approximately twenty parts per billion (ppb). The samples were later sent to Wright State University and Monsanto Company for testing. Monsanto could not detect any dioxin with its analytical equipment, but Wright State detected .7 ppb. In a second sampling of 1000 drums, it detected .5 ppb and the next sampling showed .3 ppb. Because the 2,4-D waste contained dioxin, Vertac stopped analyzing samples of the waste and allowed the drums to accumulate. Later testing by the State of Arkansas, as well as the results of trial burns, revealed the presence of dioxin in the drums.

Vertac continued its operations until 1986. In 1987, it abandoned the site, and the site went into receivership. By then, there were nearly 29,000 drums at the site that contained waste materials including 2,4-D, 2,4,5-T, and dioxin. Some drums were labeled T waste, some D waste, some were marked T and D, and some were not marked at all. Many of these markings were indistinguishable or unreadable. More than 15,000 drums were stored outside and exposed to the elements. The drums were stacked three high on deteriorating pallets and were failing at a rate of between five to three hundred drums per week.

Many of the drums had corroded and leaked, contaminating the soil, groundwater, and buildings at the site. Contamination was found in other areas of the site, at the landfills, in nearby neighborhoods, and in the grounds adjacent to the site. After Vertac abandoned the plant, the EPA took over the site, closed down all operations, and assumed cleanup responsibilities that have cost well over $110 million to date.

To carry out its response measures, the EPA divided the site into five units: off-site areas, operable units 1, 2, and 3, and the incineration response action. Several removal actions addressed the immediate threat posed by the drummed waste left on the site when it was abandoned. Four remedial actions addressed the long term solutions for the rest of the site and the surrounding area affected by the site. For each of the remedial actions, the National Contingency Plan required the EPA to (1) conduct a remedial investigation of the site conditions, including an endangerment assessment of the threats posed by the contamination at the site; (2) perform a feasibility study examining the various technical alternatives for remediating the site; (3) take public comment on the EPA's proposed remedial action plan based on the alternatives discussed in the feasibility study; (4) compile an administrative record for remedial action decision making; and (5) issue a written record of decision (ROD) explaining the Regional Administrator's reasoning in selecting the final remedial action plan and responding to the public comments received.

Uniroyal was one of Vertac's customers and purchased 2,4,5-T and other products from Vertac in the 1970s. In 1978, Vertac informed Uniroyal that it lacked the funds to purchase enough 1,2,4,5-tetrachlorobenzene (TCB), a key ingredient in the manufacture of 2,4,5-T, to fulfill its contractual obligations to Uniroyal. Uniroyal agreed to supply Vertac with enough TCB to create some 1.3 million pounds of 2,4,5-T that was to be shipped back to Uniroyal. Vertac did not purchase the TCB directly from Uniroyal, but instead reduced the amount it charged Uniroyal for the 2,4,5-T to reflect the value of the TCB that Uniroyal had supplied. This arrangement was embodied in two separate contracts and was carried out between March 1978 and March 1979. The 2,4,5-T that was produced with Uniroyal's TCB represents less than one percent of the more than 150 million pounds of 2,4-D and 2,4,5-T that were manufactured at the site over the

course of its operation.

B. Procedural History[4]

On October 12, 1993, the district court granted the government's motion for summary judgment, holding that Hercules was jointly and severally liable under CERCLA sections 107(a)(2) and (3) for the response costs incurred by the United States with regard to the Jacksonville site. 42 U.S.C. § 9607(a)(2) and (3); *United States v. Vertac Chem. Corp.*, 841 F.Supp. 884 (E.D.Ark.1993). Hercules moved for reconsideration, arguing that disputed issues of fact existed regarding divisibility. On November 1, 1993, the district court denied Hercules's motion, finding that Hercules had failed to present evidence in support of its divisibility of harm defense.

Hercules appealed that decision, and we reversed and remanded the case to the district court to reconsider Hercules's claim of divisibility in light of the legal standards enunciated in our April 11, 2001, opinion.[5] *United States v. Hercules, Inc.*, 247 F.3d 706 (8th Cir.2001) (*Vertac XI*). In October and December 2001, the district court held an evidentiary hearing on Hercules's divisibility of harm defense, resulting in a transcript of some 2300 pages in length. The parties submitted post-hearing briefs, together with a voluminous record that included documents, exhibits, transcripts, depositions, and the administrative record. The district court considered the entire record, applied the law as stated in *Vertac XI*, and held that Hercules had failed to establish its divisibility of harm defense, with the exception of

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[4] Litigation began in 1980. For a description of the early procedural history, *see United States v. Hercules, Inc.*, 247 F.3d 706 (8th Cir.2001) and *United States v. Vertac Chem. Corp.*, 966 F.Supp. 1491 (E.D.Ark.1997).

[5] In its most recent opinion, the district court noted an inconsistency in our April 11, 2001, opinion. In that opinion, we meant to vacate: (1) the unpublished opinion issued on October 12, 1993, and (2) the denial of the motion to reconsider issued on November 1, 1993.

one off-site landfill, the Rogers Road landfill (a divisibility finding that the government does not challenge). *United States v. Vertac Chem. Corp.*, 364 F.Supp.2d 941 (E.D.Ark.2005) (*Vertac XII*).

In its final judgment following its March 30, 2005, memorandum opinion and order, the district court held that Hercules and Uniroyal were jointly and severally liable to the United States for the following amounts: (1) Hercules, in the amount of $119,318,504, plus any additional response costs, and (2) Uniroyal, in the amount of $110,410,161, plus any additional costs. The district court had previously allocated the amount of contribution of the total response costs for which each entity was jointly and severally liable. To the extent that the United States enforces its judgment, Hercules is entitled to contribution from Uniroyal in an amount equal to 2.6 percent of $110,410,161, and Uniroyal is entitled to contribution from Hercules in an amount equal to 97.4 percent of $110,410,161.

On appeal, Hercules argues that the district court erred in apportioning liability. Uniroyal argues that we should overturn our holding in *Vertac XI* that affirmed the district court's holding that Uniroyal was liable. Hercules and Uniroyal further argue that the district court's imposition of retroactive liability was unconstitutional.

II. HERCULES'S LIABILITY

Hercules challenges the district court's liability determination on both legal and factual grounds. We will first address Hercules's contention that the district court applied the wrong legal standard in determining whether Hercules established its divisibility of harm defense. We will then turn to Hercules's argument that the drummed waste, the stillbottoms, Operable Unit 1 (OU-1), the Jacksonville Landfill, the soils, and the groundwater are each separate sites capable of further apportionment.

We review *de novo* the district court's legal conclusions.

Richardson v. Sugg, 448 F.3d 1046, 1052 (8th Cir.2006). We review its factual findings for clear error. *Id.* "Using this standard, we will overturn a factual finding only if it is not supported by substantial evidence in the record, if it is based on an erroneous view of the law, or if we are left with the definite and firm conviction that an error was made." *Id.* We give due regard to the district court's opportunity to judge the credibility of the witnesses. *Id.* "A district court's choice between two permissible views of evidence cannot be clearly erroneous." *Tadlock v. Powell,* 291 F.3d 541, 546 (8th Cir.2002).

A. Legal Standard

Hercules contends that the district court erred in concluding that the site could not be separated into divisible geographic units. As to the drums, Hercules argues that the district court failed to consider whether there existed a single, divisible harm and addressed only whether there existed distinct harms. The thrust of Hercules's arguments is factual, however, and the district court applied the appropriate legal standard.

In *Vertac XI* we held that a defendant must prove by a preponderance of the evidence that there exists a reasonable basis for divisibility. *Vertac XI,* 247 F.3d at 717.

> The proper standard for determining divisibility ... is that the defendant show either distinct harms or a reasonable basis for apportioning causation for a single harm. A defendant need not prove that its waste did not, or could not, contribute to any of the harm at a CERCLA site in order to establish divisibility, because it is also possible to prove divisibility of single harms based on volumetric, chronological or other types of evidence. A site may also be divisible if a defendant can establish that it consists of non-contiguous areas of contamination.

Id. at 719 (internal quotations and citations omitted). We

noted that proving divisibility is a "very difficult proposition" and that where the harms are incapable of division, the district court should not make an arbitrary apportionment. *Id.* at 717.

In its opinion, the district court applied the standard for determining divisibility as set forth in *Vertac XI.* The district court first considered whether Hercules established a reasonable basis for divisibility by proving by a preponderance of the evidence that the site could be divisible on a geographical basis.[6] Under its geographical apportionment theory, Hercules argued that each operable unit within the Jacksonville site is a separate site for purposes of divisibility. In considering and ultimately rejecting Hercules's argument, the district court found that the EPA divided the site into operable units for the purposes of remediation and that the "operable units did not solely address geographical portions of the Site." *Vertac XII,* 364 F.Supp.2d at 951.

With regard to the drums, Hercules argues that the district court erroneously held that cross-contamination and commingling of dioxin prevented Hercules from establishing a reasonable basis for divisibility. In *Vertac XI*, we held that a single harm may be treated as divisible when it is possible to discern the degree to which different parties contributed to the damage. "Single harms may also be treated as divisible in terms of degree, based, for example on the relative quantities of waste discharged into the stream. Divisibility of this type may be provable even where wastes have become cross-contaminated and commingled." 247 F.3d at 718 (internal quotations omitted). Hercules, however, did not argue that the drums caused a single, divisible harm that could be

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[6] We have considered Hercules's argument concerning the information contained in one of the government's exhibits (Exhibit K). Because the district court expressly stated at the time it granted the government's motion to withdraw the exhibit that it would not rely on the exhibit in ruling on Hercules's divisibility defense, we conclude that this argument is without merit.

apportioned based on relative quantities of waste or volumetric evidence. As the government points out, this argument would have been inconsistent with Hercules's argument that it should not be held liable for any of the drummed waste.

B. Drummed Waste

The 28,500 drums contained 2,4-D and 2,4,5-T stillbottom wastes, dioxin, and other hazardous and toxic substances. When the site went into receivership, the drums were leaking, corroding, and failing. By February 1989, the failed drums had been placed inside new, larger drums (overpacked). Because the drums contained corrosive materials, maintenance of the drums was an ongoing process. The EPA determined that the wastes on the site posed a threat to public health and welfare and the environment. The drummed material was considered acutely hazardous waste, and the EPA chose to dispose of the wastes by incineration. The Arkansas Department of Pollution Control and Ecology (ADPC & E) managed the incineration from 1989 until June 1993, when the EPA took over the on-site incineration of the drums.

Hercules argues that the district court clearly erred in finding the following: (1) the EPA and the ADPC & E decided to incinerate the 2,4-D waste drums because of the dioxin contained therein; (2) Hercules was responsible for the cross-contamination of the plant equipment causing 2,4-D waste drums to contain dioxin; and (3) Hercules was responsible for the commingling of the 2,4-D waste and the dioxin contaminated soil, causing the drums to contain dioxin.

Hercules first argues that it should not be held liable for the cost of incinerating the 2,4-D waste drums because those drums would have been incinerated regardless of whether they were contaminated with dioxin. The district court concluded that Hercules's argument did not "withstand scrutiny" and found that the EPA and Arkansas were

concerned that a potential fire, explosion, or tornado could spread dioxin into the environment. *Vertac XII,* 364 F.Supp.2d at 953. Thus, the district court determined that "[i]t was not, as Hercules argues, the dirt in the drums that drove the incineration; rather it was the dioxin in the dirt that drove the incineration of the drums." *Id.*

As the district court noted in the factual background of the case, the Vertac Rule permitted Vertac to landfill the 2,4-D waste drums only after showing that the drums contained no dioxin. This was never shown, and Phyllis Moore, Ph.D., the former director of the ADPC & E, and Randall Mathis, her successor, testified (1) that time was of the essence, (2) that further testing was expensive and time consuming, (3) that the 2,4-D drums were corroding and failing, and (4) that the drums posed an imminent risk of fire and explosion.

Dr. Moore was involved in the initial decision to incinerate the 2,4-D waste drums. Although she stated that the "issue of dirt" did not influence her decision, Dr. Moore testified that a primary concern was the presence of dioxin in the 2,4-D waste drums, regardless of whether it was transmitted to the drums by cross-contamination at the production facility or by the overpacking of the drums with contaminated soil. J.A. at 26433-34. She further testified that it was important that the method of incineration satisfy the requirements of the ADPC & E and the EPA for destruction of dioxin. Regarding the ultimate decision to incinerate, Dr. Moore testified that the state "would have looked at other options" if there had been no dioxin in any of the drums. J.A. at 26445. We thus reject Hercules's argument that the incineration of the 2,4-D drums was in no way attributable to dioxin.

Hercules next argues that the district court clearly erred in finding that the equipment at the plant contaminated 2,4-D waste with dioxin after Hercules had cleaned the production vessels in 1970. The district court found that "the cleanup of the equipment was not as thorough as portrayed by Hercules,

and that the plant equipment was cross-contaminated with 2,4-D, 2,4,5-T, and dioxin." *Vertac XII,* 364 F.Supp.2d at 952. The district court rejected Hercules's theory that Vertac's chemical production flushed the dioxin out of the production vessels.

In its brief, Hercules recites portions of Arthur Treisback's affidavit, which was excluded as hearsay at trial and is not part of the record on appeal, and relies primarily on Treisback's deposition testimony, portions of which were read into evidence by Richard Karkkainen during his testimony. Treisback was Hercules's plant manager in charge of the 1970 plant cleanup, and Karkkainen was Vertac's director of environment and safety from 1979 to 1986. Karkkainen testified that Treisback's deposition testimony described the common practice of cleaning plant equipment and, although Karkkainen had no personal knowledge of the cleaning, that it was likely that Hercules followed the common practice. J.A. at 26458. Karkkainen further testified that there was no indication that the cleaning process was successful. J.A. at 26562.

The district court also heard the testimony of Reeddie Ray and Stephen Quigley. Ray worked for Hercules from 1964 to 1970 and was involved in the plant cleanup. Ray testified extensively about how the equipment was cleaned. To clean the tanks, "[w]e washed them out with a water hose.... Only time we heated the water if there was sediment in the bottom of the tank." Regarding the process lines, "Process lines were cleaned with steam.... We had to disassemble the lines to get water out of the tank." Ray did not recall using any solvents: "The only time we used solvent is where we wanted to take the sediment and circulate and dissolve something in it, but I don't think we used solvent. I think we just used water and steam, that's all." J.A. at 27522-23. Quigley, Uniroyal's expert, testified that it was unlikely that solvents were used to clean the equipment and even if they were, it is likely that some contamination would remain

in the equipment. J.A. at 28089-90. Given the evidence before the district court, we conclude that it did not err in finding that dioxin remained in the plant after Hercules's 1970 cleaning.

Hercules contends that the district court clearly erred in rejecting its flushing theory. According to this theory, after Vertac shifted plant production exclusively to products that do not generate dioxin, about ten production runs would have flushed out any significant amount of dioxin remaining in the plant equipment. Because Vertac stopped producing 2,4,5-T in March 1979, three years after Hercules sold the plant to Vertac, Hercules argued that there could be no detectable dioxin in the 2,4-D waste in late 1979, when Vertac began to accumulate the 2,4-D waste drums. The district court disregarded the flushing theory as, "just that-a theory" and noted that "[a]fter nearly eight years of only 2,4-D production, dioxin and 2,4,5-T were present in plant equipment." *Vertac XII,* 364 F.Supp.2d at 952.

We conclude that the district court did not err in rejecting Hercules's flushing theory.[7] The district court stated that, because the plant equipment contained dioxin and 2,4,5-T after nearly eight years of 2,4-D production, "the evidence basically disproves the theory." The finding that dioxin was present in the plant equipment is supported by the evidence. An EPA inventory of the process vessels and tanks in the central process area of the Jacksonville site showed that 140 of the 213 process vessels contained chemical material including 2,4-D, 2,4,5-T, and dioxin. J.A. at 19779-80. Of the ninety-six vessels sampled, more than half were contaminated with dioxin at levels greater than 0.3 ppb. J.A.

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[7] Hercules argues that the government's attorney made a judicial admission supporting Hercules's flushing theory. Having reviewed the record, we conclude that the statements in question did not rise to the level of a binding judicial admission.

at 19780. Hercules argues that the data showing contamination of the plant equipment was untrustworthy, but Hercules has failed to show that the EPA or the district court relied on that evidence. Hercules's expert witness, Randal Maud, Ph.D., served as the project manager for Hercules at the Jacksonville site to assess the environmental consequences of the site. He testified that the unreliable data, "would likely not be used because of the quality assurance problems." J.A. at 28256.

Finally, with regard to the drummed waste, Hercules argues that the district court erred in holding Hercules liable for the waste that was placed in the drums during overpacking. Hercules contends that either the placement of the dioxin-contaminated soil into the 2,4-D drums constituted a second disposal under CERCLA, for which it is not liable, or that the overpacking by Vertac or the EPA constituted a superseding cause, thereby relieving Hercules of liability. Hercules does not dispute, however, that it contaminated the soil with dioxin at the Jacksonville site.

As the district court recited in its decision, disposal under CERCLA is defined as the "discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water so that such ... waste ... may enter the environment." 42 U.S.C. § § 6903(3), 9601(29). Hercules caused dioxin to enter the environment, thereby disposing of the waste. That Vertac and the EPA overpacked leaking drums in an effort to contain the further contamination of the site does not absolve Hercules of CERCLA liability. Accordingly, Hercules remains responsible for the ongoing contamination caused by the dioxin, for that contamination was not solely caused by the act of a third party.

C. Stillbottoms

Hercules argues that the stillbottom waste was not disposed of until after Hercules sold the plant and that thus it

is not responsible for any of the costs related to that disposal. Vertac began accumulating 2,4,5-T stillbottom drums on-site in 1975, and it bought the plant from Hercules in 1976. Hercules claims that Vertac merely stored the waste for the purpose of later recycling, and thus did not dispose of the waste until 1979, when the registration for 2,4,5-T was suspended. Accordingly, Hercules claims that the 2,4,5-T stillbottom drums constituted a distinct harm and that it should not be liable for their incineration.

Section 103(a) of CERCLA holds liable "any person who at the time of disposal of any hazardous substance owned or operated any facility at which such hazardous substances were disposed of." 42 U.S.C. § 9607(a)(2). The term "facility" includes, "any site or area where a hazardous substance has been deposited, stored, disposed of, or placed." 42 U.S.C. § 9601(9). Finally, as we recounted above, disposal includes placing hazardous waste in a manner that allows the waste to enter the environment. Simply stated, the district court found that Hercules owned a facility at which hazardous waste was allowed to enter the environment. Specifically, it found that the stillbottoms leaked onto the ground when Hercules owned the plant. This finding is supported by Quigley's expert testimony: "[W]hen the wastes [stillbottoms] were put into drums for disposal, they were put into recycle drums, ... and those recycle drums did leak, some of them instantaneously upon having the waste put in them, and other times shortly after the waste being put in them." J.A. at 28082. Robert Fischer, a chemist with Hercules and Vertac, also testified that the deterioration of the T drums was one of the major sources of dioxin contamination at the site. J.A. at 27060. In light of this testimony, we conclude that the district court did not clearly err in holding Hercules liable for the incineration of the stillbottoms.

D. Operable Unit 1

OU-1 consisted of the above-ground media, including the process vessels (e.g. the storage tanks, chemical reaction

vessels) in the central process area. The ROD for OU-1 required that plant equipment be dismantled and salvaged to the extent possible and that all other nonsalvageable material be placed in an on-site landfill. Any hazardous material not suitable for the landfill was to be incinerated. Hercules implemented the remedy pursuant to Unilateral Administrative Order (UAO) issued by the EPA.

Hercules argues that the district court erred in holding it liable for the cleanup of OU-1, including the demolition, removal, and disposal of plant buildings and equipment, and their process waste contents. Hercules admits liability for part of the OU-1.[8] It contends that it established a reasonable basis of divisibility for further apportioning liability. Hercules argues that the district court erred in finding (1) that the plant buildings were demolished because they contained dioxin, (2) that Hercules was responsible for the contamination of the equipment, the shredded trash, and the pallets, and (3) that the EPA's response action was not arbitrary or capricious.

The district court found that "[t]he buildings were demolished because the risk of collapse might cause release and human exposure to herbicide process contamination, including unacceptable levels of TCDD [dioxin]." We conclude that the record adequately supports this finding. Maud testified that the EPA was concerned about the buildings because they were falling into disrepair and because "they contained large amounts of asbestos siding and roofing and asbestos interiors, some of which also contained dioxin dust." J.A. at 28265. The ROD states that in the event of a catastrophe, "Based on the 2,3,7,8-TCDD (dioxin) concentrations found in [OU-1], human exposure to concentrations in excess of those considered acceptable ... could occur." J.A. at 19811.

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[8] Hercules accepted responsibility for the spent carbon wastes it generated.

Hercules further contends that the district court clearly erred in finding that Hercules was responsible for the contamination of the plant equipment. In his expert testimony, Eugene Meyer, Ph.D., affirmed the statement from his 1998 affidavit that "[t]he presence of 2,3,7,8-TCDD [dioxin] was established through samples in all of the following: surface and subsurface materials collected from the site sewers, distillation bottoms, waste activated carbons, leachate from on-site buildings, trash, shredded pallets, and the sludges generated during the treatment of waste waters." J.A. at 27928. Although Hercules's project manager for EPA compliance, Douglas Keilman, opined that Hercules did not cause the contamination, his opinion was based on the flushing theory. For the reasons stated above, we again conclude that the district court did not clearly err in rejecting that theory.

The district court found that "Hercules cannot establish that it was not the source of the contamination on the shredded trash and pallets." *Vertac XII,* 364 F.Supp.2d at 955. The shredded trash included things like hard hats, broken tools, and tyvex suits, and the pallets were used to store drummed waste at the site. Although Keilman testified that the trash had been accumulating since 1980, there was no evidence to show that Vertac, and not Hercules, caused the contamination of the trash. The district court found that the pallets were contaminated by both leaking drums and contaminated soil. Because Hercules is responsible for the contaminated soil, the district court did not err in further holding it responsible for the pallets.

Finally, Hercules argues that the EPA's issuance of a UAO requiring Hercules to dismantle and to landfill the equipment and buildings at the site was arbitrary and capricious. We disagree. Section 113(j) of CERCLA allows a defendant to avoid paying response costs to the extent that it can show that the response action was arbitrary and capricious. 42 U.S.C. § 9613(j). Hercules does not argue that

the disposal of the building and equipment is arbitrary and capricious, but rather that the EPA was arbitrary and capricious in issuing a UAO. To support the issuance of a UAO, there must be evidence that there "*may be* an imminent and substantial endangerment to the public health or welfare or the environment because of an actual or threatened release of a hazardous substance from a facility." 42 U.S.C. § 9606(a) (emphasis added). Because the record contains sufficient evidence to support the EPA's determination that the cautionary "may be" threat of imminent substantial endangerment had been established, its decision to issue the UAO was not arbitrary and capricious.

E. Jacksonville Landfill

The district court found that Hercules disposed of hazardous wastes at the Jacksonville Landfill and held Hercules liable for the cleanup costs associated with the landfill. In its investigation, the EPA found rusting drums and piles of "white fibrous, absorbent-type materials" at the Jacksonville Landfill. Tests confirmed the presence of dioxin, 2,4,5-T, and other chemicals associated with the Jacksonville site. In its ROD, the EPA called for the excavation of contaminated soils, the replacement and capping of the excavated areas with clean soil, and the cleaning and removal of large refuse items. The contaminated soil and drums were incinerated at the site. Although Hercules admits that it took some nonhazardous waste to the Jacksonville Landfill, it argues that the district court clearly erred in finding that Hercules disposed of hazardous wastes at the Jacksonville Landfill, and it contends that the EPA's response was arbitrary and capricious.

We conclude that the district court's finding is supported by substantial evidence. Indeed, the district court cited the testimony by four Hercules employees that they took chemical wastes to the Jacksonville Landfill. Billy Honey worked maintenance at the plant from the time Hercules bought it until it closed. J.A. at 26291. He testified that he

hauled drums filled with chemical waste to the Jacksonville Landfill. J.A. at 26299-300. Doyce Shurley worked for Hercules in the early 1960s, and he recalled taking a barrel of stillbottoms to the landfill. Vincent Dodson worked for Hercules in the late 1960s, and he testified that chemical wastes were disposed of at the landfill. When asked what type of waste was taken to the Jacksonville landfill, Leroy Jordan replied, "We took [waste] from each trash pick-up point. We took it from every rig and barrels. We cleaned out the incinerator and carried that stuff over there. Anything that they needed to get rid of, and that included benzen barrels, trash from the lunchroom, barrels of goop, acid, anything and everything." J.A. at 26352.

Hercules argues that this testimony should be discredited because it presented contradictory evidence to counter it. The short answer to this contention is to note once again that a district court's choice between two permissible views of the evidence is no basis for a conclusion that its factual finding is clearly erroneous. *Tadlock,* 291 F.3d at 546.

Hercules contends that the EPA's response to the Jacksonville landfill was inappropriate for the following reasons: (1) the cancer potency factor used by the EPA in its risk assessment constitutes a rule under the Administrative Procedures Act (APA) that must be overturned because it was not subject to notice and comment, and (2) the EPA's exposure assumptions were arbitrary and capricious. We disagree.

The cancer potency factor was used to calculate the risk and to set dioxin cleanup standards for the soil and sediments at the Jacksonville site. To determine whether a statement by an agency is a legislative rule or policy, we apply the two-part test of *McLouth Steel Prod. Corp. v. Thomas,* 838 F.2d 1317, 1320 (D.C.Cir.1988). A policy statement (1) does not have a binding effect; it does not impose any rights and obligation; and (2) a policy "genuinely leaves the agency and its decisionmakers free to exercise discretion." *Id.* (internal

quotations omitted). The district court concluded that the "Health Assessment Document which set forth the cancer potency factor does not impose any rights [or] obligations. It is at most only a technical and advisory report. It did not obligate the agency or public in determining acceptable risks associated with dioxin." *United States v. Vertac Chem. Corp.*, 33 F.Supp.2d 769, 779 (E.D.Ark.1998) (*Vertac IX*).

This finding is adequately supported by the record. As the district court noted, the EPA Regional Administrator considered the lower figure proposed by Hercules's contractor, ChemRisk, and rejected it. Indeed, in the ROD for the Jacksonville landfill, the EPA addressed why ChemRisk's calculations would not be used, "Hercules Inc. submitted a report prepared by ChemRisk which provided calculations resulting in cleanup goals differing from EPA's for dioxin. The report utilized certain calculations and assumptions which were contrary to EPA guidance and resulted in cleanup goals much less restrictive than those calculated by the EPA ." J.A. at 16407. The document goes on to discuss the discrepancies between the EPA's and ChemRisk's methods of calculating site related risks and to explain that the EPA rejected ChemRisks proposal because "ChemRisk's proposed cleanup goals, using EPA's risk assessment approach, would not result in excess cancer risks (after remediation) within the acceptable risk range." J.A. at 16408. The EPA considered Hercules's comments on the EPA's application of the cancer potency factor with regard to the cleanup levels at the site and responded to the comments in the final RODs.

Hercules argues that the exposure assessments used by the EPA were arbitrary and capricious and did not justify the remedial order. Having considered the ROD and related evidence, we conclude that this argument is without merit.

F. Soils and Groundwater

The revised ROD for Operable Unit 2 (OU-2) addressed contaminated on-site soils, foundations, and underground

utilities and off-site soils and sediments that had been excavated from off-site areas and stored on the site. The remedy selected required the excavation of dioxin contaminated soil, and the disposal of this soil in an on-site containment vault. The ROD for Operable Unit 3 (OU-3) dealt with groundwater contamination under the site. It states that "groundwater contamination at the site is complex, resulting from past waste management and disposal practices. Sources of contamination include on-site landfills, spills and discharges into the central ditch, Reasor Hill well, and other parts of the central process area." J.A. at 20136.

Hercules argues that the soil and groundwater contamination were divisible as successive harms based on the relative production volumes of 2,4,5-T and 2,4,5- TP attributable to Hercules from 1961 until it sold the plant in 1976 and to Vertac from that point until it ceased production of 2,4,5-T in 1979. Based on the estimated production figures, Keilman determined that Hercules was responsible for 70.74% of the EPA's response costs. J.A. at 27177. To reach this figure, Hercules relied on the following assumptions and evidence: (1) Hercules assumed that leaks and spills took place at roughly the same frequency and severity during the plant's production of 2,4,5-T and 2,4,5-TP; (2) Keilman testified that prior to 1965, most of the dioxin left the plant with the product; (3) Hercules offered evidence that the half-life of dioxin in soil is approximately twelve years, though it ranged from a few days to decades; and (4) Hercules touted its housekeeping and maintenance practices as being far superior to those of Vertac.

The district court determined that this evidence was not sufficiently concrete and specific to apportion the harm. Most importantly, there was no evidentiary basis for Hercules's assumption that the release of wastes at the site was related to production volumes, nor was there any testimony that there was any reasonably constant ratio or direct correlation between the releases of dioxin and production of dioxin

generating products. As the district court pointed out and as the record reveals, the production methods changed over the years, the specifications for the product varied, Hercules and Vertac used different methods of disposal of dioxin contaminated filter paper and cardboard drums, and each companies experienced different plant eruptions. Although Hercules may be able to fairly estimate the production volumes of 2,4,5-T and 2,4,5-TP from the time it owned the plant, the district court correctly held that it cannot establish the inferences necessary to prove a reasonable basis for apportionment of harm.

Hercules argues that the EPA's response choices for the soils, groundwater, and off-site areas are arbitrary and capricious and that Hercules should not be held liable for the corresponding response costs. Having considered the record, we conclude that Hercules's argument is without merit.

III. UNIROYAL'S LIABILITY

Uniroyal argues that we should hold that it is not liable as an arranger under CERCLA, and thus overturn the panel's decision in *Vertac XI*. "When a case has been decided by this court on appeal and remanded to the district court, every question which was before this court and disposed of by its decree is finally settled and determined." *Klein v. Arkoma Prod. Co.*, 73 F.3d 779, 784 (8th Cir.1996). Absent intervening controlling authority, we are bound by the decision of the previous panel. *Liberty Mut. Ins. Co. v. Elgin Warehouse & Equip.*, 4 F.3d 567, 571 (8th Cir.1993). Uniroyal pointed to no new controlling authority, and thus the affirmance of the district court's finding of liability in *Vertac XI* is the law of the case. Because that holding is not "clearly erroneous" nor does letting it stand "work a manifest injustice," we refuse to disturb it. *Liberty Mut. Ins. Co.*, 4 F.3d at 570-71.

IV. RETROACTIVITY

Hercules and Uniroyal contend that the retroactive

application of CERCLA to impose liability is unconstitutional under the Supreme Court's decision in *Eastern Enterprises v. Apfel,* 524 U.S. 498 (1998). We previously resolved this exact issue in *United States v. Dico,* in which we held that CERCLA's retroactive application remained constitutional after *Eastern Enterprises. Dico,* 266 F.3d 864, 879-880 (8th Cir.2001). We are thus bound by our Circuit's precedent and accordingly will not revisit the issue. *See United States v. Wright,* 22 F.3d 787, 788 (8th Cir.1994) ("[A] panel of this Court is bound by a prior Eighth Circuit decision unless that case is overruled by the Court sitting *en banc.*").

V. CONCLUSION

The judgment is affirmed. The judgment is affirmed.

APPENDIX B: OPINION OF THE U.S. DISTRICT COURT FOR THE EASTERN DISTRICT OF ARKANSAS DATED MARCH 30, 2005

United States District Court,

E.D. Arkansas,
Western Division.

UNITED STATES of America, Plaintiff,
v.
VERTAC CHEMICAL CORP., et al., Defendants.

No. CIV. 4:80CV00109GH.

March 30, 2005.

MEMORANDUM OPINION AND ORDER

The Vertac Site in Jacksonville, Arkansas, has been the focus of litigation for 25 years. The history of the Vertac Site and Off-Site areas has been discussed in numerous prior decisions.[1] This Court previously found both Hercules Incorporated ("Hercules") and Uniroyal Chemical Limited ("Uniroyal")[2] jointly and severally liable under the Comprehensive Environmental Response, Compensation and

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[1] *United States v. Vertac Chem. Corp.*, 489 F.Supp. 870 (E.D.Ark.1980); *United States v. Vertac Chem. Corp.*, 588 F.Supp. 1294 (E.D.Ark.1984); *United States v. Vertac Chem. Corp.*, 671 F.Supp. 595 (E.D.Ark.1987), *vacated*, 855 F.2d 856 (8th Cir.1988); *United States v. Vertac Chem. Corp.*, 756 F.Supp. 1215 (E.D.Ark.1991), *aff'd*, 961 F.2d 795 (8th Cir.1992); *United States v. Vertac Chem. Corp.*, 966 F.Supp. 1491 (E.D.Ark.1997); *United States v. Vertac Chem. Corp.*, 33 F.Supp.2d 769 (E.D.Ark.1998); *United States v. Vertac Chem. Corp.*, 79 F.Supp.2d 1034 (E.D.Ark.1999). *See also O'Dell v. Hercules, Inc.*, 687 F.Supp. 450 (E.D.Ark.1988)(*O'Dell-Bridges*), *aff'd* 904 F.2d 1194 (8th Cir.1990).

[2] As of January 30, 2001, the name of Uniroyal Chemical Limited was changed to Crompton Co./Cie. For ease and consistency, the Court will continue to use the name Uniroyal.

Liability Act of 1980 ("CERCLA"), 42 U.S.C. §§ 9601 *et seq.* for all response costs incurred and to be incurred by the United States at the Site and related areas, and entered judgment in the amount of $102,878,641.35. *United States v. Vertac,* 33 F.Supp.2d 769 (E.D.Ark.1998). In what was hoped to be the last decision in this matter, the Court allocated the costs between Hercules and Uniroyal. *United States v. Vertac,* 79 F.Supp.2d 1034 (E.D.Ark.1999).

GENESIS OF THIS DECISION

On October 12, 1993, the Court granted the United States' motion for summary judgment and found that Hercules was jointly and severally liable under Section 107(a)(2) and (3) of CERCLA, 42 U.S.C. § 9607(a)(2) and (3) for the response costs incurred by the United States with regard to the Vertac Site. Hercules moved for reconsideration, at which time it argued that disputed issues of fact existed regarding divisibility. The Court, on November 1, 1993, denied the motion for reconsideration, finding, *inter alia,* that Hercules had failed to present evidence in support of its divisibility of harm argument.

On December 19, 1999, Hercules appealed the Court's summary judgment ruling, arguing in part that the harm at the Site is divisible. On April 11, 2001, the Eighth Circuit Court of Appeals reversed the Court's summary judgment against Hercules on the issue of liability and remanded the case for the Court to "address evidence supporting divisibility in light of the proper legal standards." *United States v. Hercules, Inc.,* 247 F.3d 706, 719 (8th Cir.2001).[3] The Eighth Circuit

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[3] The Eighth Circuit's decision is somewhat confusing. The court stated that it was vacating *United States v. Vertac Chem. Corp.,* 841 F.Supp. 884 (E.D.Ark.1993) ("*Vertac V* "). *Vertac V* however dealt only with the liability of the United States. In that case, Vertac, Hercules and the State of Arkansas argued that the United States should be held liable under CERCLA for its role in the production of Agent Orange. The United States filed a motion for partial summary judgment asking that the Court find that it is not liable. The Court found the United States not to be liable,

also vacated the Court's judgments on response costs, *United States v. Vertac Chem. Corp.*, 33 F.Supp.2d 769 (E.D.Ark.1998) ("*Vertac IX*") and allocation, *United States v. Vertac Chem. Corp.*, 79 F.Supp.2d 1034 (E.D.Ark.1999) ("*Vertac X*") pending the Court's reconsideration of Hercules' claim of divisibility. 247 F.3d at 721.

The Court scheduled a limited evidentiary hearing on the divisibility of harm defense raised by Hercules. The hearing was held between October 9 and 19, 2001 and December 11 and 12, 2001. The parties subsequently filed post-hearing briefs. The record, needless to say, is voluminous, comprising not only the numerous filed documents, but exhibits and transcripts admitted at the evidentiary hearing, exhibits and transcripts of the various trials in this action, evidentiary and deposition testimony of other federal actions involving Hercules, and the 52,000-page Administrative Record (AR) for the Site which has been filed in this action as 8 compact discs (see docket entry 2454). The Court has

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denying the motions of Vertac, the State of Arkansas, and Hercules and granting the motion of the United States.

The Eighth Circuit Court of Appeals affirmed the Court's conclusion that the United States was not liable as an "operator" or "arranger" in *United States v. Vertac Chem. Corp.*, 46 F.3d 803 (8th Cir.1995) ("*Vertac VI*").

Vertac V did not grant summary judgment on the United States' motion for summary judgment against Hercules on the issue of liability and did not address Hercules' argument concerning divisibility of harm. The finding of joint and several liability of Hercules was issued in an unpublished decision entered on October 12, 1993. (document no. 1826) (granting United States' motion for partial summary judgment against Hercules on the issue of liability under CERCLA). The subsequent order denying Hercules' motion for reconsideration on the issue of divisibility, also unpublished, was entered on November 1, 1993 (document no. 1875)(denying Hercules' motion for reconsideration of October 12, 1993 Order).

Should the Eighth Circuit again address this case, it might want to clarify the record. It is unclear whether the Court's decision in 841 F.Supp. 884 and affirmed in 46 F.3d 803 concerning the United States' liability should have been vacated.

worked diligently to carefully review the record in considering this case.

FACTUAL BACKGROUND

The Vertac Chemical Plant Site ("Site") consists of approximately 93 acres in Jacksonville, Arkansas. The Site was originally developed by the federal government in the 1930s as a munitions factory. Around 1948, Reasor-Hill Corporation ("Reasor-Hill"), a now defunct company, purchased the Site and first formulated finished insecticide products, primarily DDT, aldrin, dieldrin, and toxaphene. In the mid-1950s, Reasor-Hill modified the plant and began manufacturing phenoxy herbicides, primarily 2,4, dichlorophenoxyacetic acid ("2,4-D"), 2,4,5 trichlorophenoxyacetic acid ("2,4,5-T") and 2,4, 5 trichloropropionic acid ("2,4,5-TP" or "Silvex"). *United States v. Vertac Chem. Corp.*, 489 F.Supp. 870, 873 (E.D.Ark.1980) ("*Vertac I* "). The chlorinated compound 2,4,5-trichlorophenol (2,4,5-TCP or TCP) was an intermediate in the 2,4,5-T manufacturing process. The manufacture of 2,4,5-T creates a highly toxic byproduct, 2,3,7,8-tetrachlorodibenzo-p-dioxin ("dioxin" or "TCDD") that is now viewed as hazardous to humans. *Vertac XI* at 712. All of the herbicide related compounds are listed hazardous wastes under the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. § 6921, 40 C.F. R. § § 261.31, 261.33, and the compounds 2,4,5-T, 2,4,5-TCP, 2,4,5-TP are designated as "Acute Hazardous Wastes" under RCRA. 40 C.F.R. § 261.31. Additionally, all of the phenoxy herbicides and TCP are designated as hazardous substances under CERCLA. *See* 42 U.S.C. 9601(14); 40 C.F. R § 302.4.

Reasor-Hill did not have a process to treat the waste water that was produced. *United States v. Vertac Chem. Corp.*, 966 F.Supp. 1491, 1494 (E.D.Ark.1997) (*"Vertac VIII"*). While Reasor-Hill operated the Site, an unknown quantity of untreated chemical wastes from the production process flowed through cooling ponds on the west side of the

plant into a nearby stream. Reasor-Hill disposed of large quantities of pesticide (insecticide) and phenoxy herbicide wastes by leaving the wastes in drums on the Site. *Vertac I* at 874.

Hercules bought the Site from Reasor-Hill in 1961 and continued to manufacture herbicides, including 2,4-D and 2,4,5-T, at the plant until 1971. *United States v. Hercules,* 247 F.3d 706, 712 (8th Cir.2001)(*"Vertac XI").* When it commenced operations at the Plant, Hercules found and then buried on-site thousands of drums of pesticide and herbicide wastes left by Reasor-Hill. *Vertac VIII* at 1494-95. The southeast corner of the Site where Hercules buried the drums was known as the Reasor-Hill drum burial area. Hazardous substances, including insecticides, phenoxy herbicides and TCDD dioxin, leached and flowed from the Reasor-Hill drum burial area into Rocky Branch Creek.

Until late 1964, Hercules continued Reasor-Hill's practice of discharging untreated wastewater directly into Rocky Branch Creek. *Vertac I* at 874. The waste water which resulted from the manufacturing of 2,4,5-T or 2,4,5-TP contained dioxin. *Id.* In 1964, Hercules constructed a waste water pretreatment system, which consisted of a neutralization trench designed to reduce the acidity of the water, an equalization basin designed to stabilize the rate of flow into the City of Jacksonville's sewage system, and a pump and pipe to deliver the treated waste water to the Jacksonville sewage system. *Id.* The waste water pretreatment system did not remove the dioxin. The basin frequently overflowed directly into Rocky Branch Creek during heavy rainfalls, and leaked.

Hercules manufactured formulations of 2,4,5-T, Silvex and 2,4,-D acids for commercial customers. It used some of the same equipment to manufacture both 2,4-D and 2,4,5-T products, but the equipment could not manufacture both simultaneously.

In 1964, Hercules was awarded a contract to produce Agent Orange for the U.S. Department of Defense ("DOD").[4] It produced and supplied Agent Orange to DOD through 1968. Agent Orange was a 50/50 mixture of the butyl esters of 2,4,5-T and 2,4,-D acids; a much more concentrated form of the acids than that sold by Hercules to its commercial customers. Dioxin was formed as a by-product during the production of Agent Orange. *Vertac VIII* at 1494. Due to strict specifications in the Agent Orange contracts, Hercules was forced to discard as waste more significant quantities of material that did not meet specifications than was discarded during production for commercial customers. At the same time, Hercules continued manufacturing 2,4,5-T, silvex and 2,4-D for its commercial customers. As a result of the increased production, the volume of wastes generated at the Plant also increased.

In 1965, Hercules discovered that in the manufacture of 2,4,5-T, dioxin was generated in the process, specifically in the dechlorinator, also known as the "sputnik."[5] In that same year, it began utilizing a "toluene extraction" system during which dioxin and other impurities that were extracted underwent a distillation process producing a residue (stillbottoms). The toluene stillbottoms were contaminated with TCDD and 2,3,7,8-tetrachloro-dibenzo-furan (TCDF). Hercules buried drums of toluene stillbottoms and 2,4-D wastes at the Site and disposed of them in the landfill areas. *Vertac VIII,* at 1494. *See also Vertac I* at 875.

The drums were allowed to collect in the process areas, sometimes for several months, before being transported to the drum burial pit. The drums were thin gauge and were in poor

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[4] Agent Orange was an herbicide used as a defoliant in Vietnam. *United States v. Vertac Chem. Corp.*, 46 F.3d 803, 805 (8th Cir.1995).

[5] Tr.2001 at 877. The dechlorinator is the vessel in which dioxin in formed during the process of making trichlorophenol. Hercules later increased the number of "sputniks" from one to three.

condition. Leakage occurred at the point of storage and in transporting the drums to the drum burial area. Hercules' practice was to scoop up any contaminated soil around the leaking drum and place it into the drum. Between June of 1964 and May of 1968, Hercules produced almost 3 million gallons of undiluted Agent Orange for DOD.

After the Agent Orange contracts terminated in 1968, Hercules continued manufacturing 2,4,5-T, silvex and 2,4-D for commercial customers until June 1970. *Vertac VIII* at 1495-96. In late 1970, Hercules ceased production at the Site and cleaned it or "mothballed" it for the winter as Hercules began to seek a buyer or lessee of the Plant.[6]

On October 1, 1971, Hercules leased the Site to Transvaal, Inc. ("Transvaal") which later became Vertac Chemical Corporation ("Vertac"). Among the actions Transvaal took prior to starting operations was the redrumming of about 50 to 100 55-gallon drums of 2,4,5-T wastes, some of which were leaking.[7] Transvaal continued to manufacture 2,4,-D, 2,4,5-T and 2,4,5-TP and continued to bury wastes on site. In 1975, Transvaal began shipping its 2,4-D waste to off-site landfills and began to store its 2,4,5-T stillbottoms above ground with the hope of recycling the waste.[8] *Vertac XI* at 712. All waste burial took place while Hercules owned the plant.

In August of 1976, Transvaal purchased the Site from Hercules and reorganized as Vertac. Vertac continued to make 2,4-D, 2,4,5-T and 2,4,5-TP. *Vertac I* at 874. Vertac continued its operations until 1986, when it abandoned the Site altogether.

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[6] The extent of Hercules' cleanup of the plant is in dispute and is discussed below.

[7] December 12, 1988 Deposition of Jerry Keister, p. 6-7.

[8] The drums of the toluene stillbottoms were still on-site when the State of Arkansas ordered them to be redrummed. 2001 Tr. at 734.

On February 28, 1979, the Environmental Protection Agency ("EPA") suspended many of the uses of 2,4,5-T. *Vertac I* at 875. On March 15, 1979, Vertac voluntarily ceased manufacturing 2,4,5-T and 2,4,5-TP and overpacked its 2,4,5-T stillbottom drums. *Id.*[9]

In 1980, Vertac recommenced the manufacture of 2,4-D. It began redrumming, or overpacking, leaking drums that it had accumulated on site.[10] Spilled material along with dirt, dust, and debris were scooped up and placed into the overpacking drums.

EPA found that the 2,4-D wastes had been contaminated with TCDD. On February 26, 1980, EPA issued a proposed rule under the Toxic Substances Control Act ("TCSA") to prevent Vertac from disposing of TCDD wastes from the Site. The rule, known as the "Vertac Rule," became effective March 11, 1980[11] and final May 19, 1980.

The Vertac Rule prohibited the off-site shipment of 2,4,-D wastes which contained TCDD.[12] However, if Vertac could show that a batch of 2,4-D was manufactured and produced wastes free of dioxins, it could ship those wastes and all subsequent wastes for off-site disposal unless it went back to manufacturing 2,4,5-T. *Vertac IX* at 780.

According to testimony at the hearing on the proposed rule, Vertac had approximately 3200 drums of wastes resulting from the production of 2,4,-D. Analysis by Vertac of three samples from 700 drums of wastes resulting from the initial production of 2,4-D revealed TCDD levels of

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[9] The recontainerization was pursuant to a June 15, 1979 Order by the Arkansas Department of Pollution Control and Ecology ("ADPC & E"). *Vertac I* at 875-876.

[10] 2001 Tr. at 354.

[11] 45 Fed.Reg. 15592.

[12] *Id.*

approximately twenty parts per billion ("ppb").[13] Vertac then sent samples of its 2,4-D wastes to Wright State University and to Monsanto for testing. Monsanto was unable to detect TCDD with its analytical equipment, but Wright State detected TCDD in composite samples taken from 700 drums of "D" wastes of .7 ppb 2,3,7,9-TCDD.[14] *Vertac IX* at 780. It subsequently found .5 ppb in another sampling of 1000 drums and a third sampling done on an undisclosed number of drums found .3ppb TCDD.[15]

Finding that dioxin was present in the 2,4-D wastes, Vertac stopped sampling and allowed the "D" wastes to accumulate. Subsequent testing by the State of Arkansas as well as the results of trial burns revealed the presence of TCDDs and TCDFs in the drums. *Vertac IX* at 781.[16] Both TCDD and TCDF were generated exclusively in the manufacture of 2,4,5-T and 2,4,5-TP, but not in the manufacture of 2,4-D.

The 2,4-D waste drums, because of the acidic nature of their contents and their condition resulting from their storage and handling, failed at a rapid rate. Beside being stored on soil, the drums were also stacked several deep, three high, and unbanded, by the thousands.

Vertac ceased operations in 1986 and abandoned the Site

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[13] 45 Fed.Reg. 32678.

[14] Hercules contends that the Monsanto results of non-detect were more reliable than the Wright State University results, although Hercules' witness Robert Fisher acknowledged that Wright State had a high resolution mass spectrometer which Monsanto did not have.

[15] 2001 Tr. at 1647.

[16] *See also e.g.*, 2001 Tr. at 1665-1678 discussing results obtained in 1993 by Richard Ehrhart, EPA Remedial Project Manager for the incineration project of about 400 drums of 2,4-D wastes.

in 1987. *Vertac VIII* at 1495.[17] When Vertac abandoned the Site in January of 1987, there were nearly 29,000 drums containing waste materials, including 2,4,5-T, 2,4,-D and dioxin. "Many of these drums had corroded and leaked, contaminating more soil, groundwater, and buildings at the site." *Vertac XI* at 712. Over 15,000 drums stored outside were exposed to the elements. "Drums were stacked three high on deteriorating pallets." *Vertac IX* at 772. The drums were failing at a rate of between five to 300 per week.[18]

"EPA determined that the wastes on the site posed a threat to public health and welfare and the environment. Residents in the area could be exposed to hazardous substances and should a large release occur, in the event of a tornado, fire, or continued poor maintenance, the toxic waste could contaminate the environment. EPA initiated a removal action in 1987 to stabilize the drums and tanks and to provide site security." *Vertac IX* at 772.

Some of the drums were labeled "T" waste, some were labeled "D" waste, some were marked "T" and "D" and some were not marked at all. Many of the markings were indistinguishable or unreadable. *Vertac,* 671 F.Supp. at 606.

"The drummed material was considered acutely hazardous waste and was characterized as 'F-listed' wasted under applicable ... RCRA regulations, 42 C.F.R. Part 261, App. VII." *Vertac IX* at 772. EPA chose to dispose of the wastes by incineration. When the incineration of the drums commenced, the contents of the drums were found to have different wastes including 2,4,-D, 2,4,5-T, 2,4,5-TP, dioxins,

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[17] *See also United States v. Vertac Chem. Corp.*, 671 F.Supp. 595 (E.D.Ark.1987) for a description of Vertac's actions in 1986 and 1987. The Eighth Circuit Court of Appeals vacated the decision because Inter-Ag, the entity who purchased Vertac's assets, had not been joined as a party to the action. 855 F.2d 856 (8th Cir.1988) (Table).

[18] 2001 Tr. at 1427, Ex. 8073.

dibenzofurans, and all sorts of various materials ranging from dirt to broken pipes. EPA completed the on-site incineration of the 2,4-D drummed waste in October, 1994. The remaining 3260 drums of 2,4,5-T wastes were shipped off-site for incineration. Off-site shipment was completed in March, 1996. *Vertac IX* at 774.

SCOPE OF REVIEW

Hercules argues that in its latest order the court of appeals vacated all previous findings of fact of this Court. That is, the Court is now free to consider new evidence and new facts. Hercules basically contends that the only evidence the Court may now consider is that which was introduced at the hearing on divisibility of harm that the Court conducted in 2001.

The Court ordered a hearing to consider additional evidence on the issue of divisibility of harm. The Court finds that it can consider the existing record. The Eighth Circuit merely remanded the case for the Court to determine, based on the record, whether Hercules had established a basis for establishing divisibility of harm. The Court of Appeals did not remand for a new trial.

The United States has already established, and the Court has previously found, that there were releases and threats of releases of hazardous substances during the time Hercules owned or operated the Site, which caused the United States to incur response costs. This is sufficient to establish Hercules' liability under CERCLA for response costs. However, it does not resolve the issue of liability completely. Hercules can "escape joint and several liability" if it can demonstrate that the harm incurred at the Site is divisible. *United States v. Alcan Aluminum Corp.*, 315 F.3d 179, 185 (2d Cir.2003).

> The universal starting point for divisibility of harm analyses in CERCLA cases is the Restatement (Second) of Torts, which provides for the apportionment of damages among two or more

> parties when at least one is able to show either (1) "distinct harms" or (2) a "reasonable basis for determining the contribution of each cause to a single harm." Restatement (Second) of Torts § 433A (1965).

Vertac XI, at 717.

Section 433A of the Restatement (Second) of Torts entitled "Apportionment of Harm to Causes," provides as follows:

(1) Damages for harm are to be apportioned among two or more causes where

(a) there are distinct harms, or

(b) there is a reasonable basis for determining the contribution of each cause to a single harm.

In other words, the defendant must prove that "there is a way to determine what portion of the harm (i.e. the hazardous substances present at the facility and the response costs incurred in dealing with them) is fairly attributable to the defendant as opposed to other responsible parties." *United States v. Manzo,* 279 F.Supp.2d 558, 562 (D.N.J.2003) (quoting *United States v. Rohm & Haas Co.*, 2 F.3d 1265, 1280 (3d Cir.1993)). "'Distinct harms' are 'those that may properly be regarded as separate injuries.'" *Vertac XI* at 717.

The burden is on Hercules to establish that there is a reasonable basis for divisibility of harm. That burden is substantial. *United States v. Alcan Aluminum Corp.*, 315 F.3d 179, 185 (2d Cir.2003). The evidence in support of divisibility "must be concrete and specific." *Vertac XI* at 718. "[T]he question whether there is a reasonable basis for apportionment depends on whether there is sufficient evidence from which the court can determine the amount of harm caused by each defendant." *In the Matter of Bell Petroleum Svcs., Inc.,* 3 F.3d 889, 903 (5th Cir.1993)(*Bell Petroleum).* "[W]here causation is unclear, divisibility is not

an opportunity for courts to 'split the difference' in an attempt to achieve equity." *Id.* A court should not settle on a compromise amount that it believes approximates the relative responsibility of the parties. If in doubt, the court should impose joint and several liability. *United States v. Township of Brighton,* 153 F.3d 307, 319 (6th Cir.1998).

ANALYSIS

Hercules advances several arguments in support of its divisibility defense. It advances a type of "geographical apportionment" theory, that is, that the harm at the Site is divisible on the basis of operable units.[19] Each operable unit should be considered, according to Hercules, a separate "site." As to these different areas, Hercules argues that it is liable only for the harm that it caused. Different approaches are used, depending on the area. Thus, with regard to the incineration of the drummed wastes, Operable Unit 1 (plant equipment) ("OU-1") and the Jacksonville and Rogers Road landfills, Hercules contends that it has no liability. As to the remaining sites, Hercules admits that it has some responsibility for contamination of on site soils and groundwater and the Off-Site Areas. It argues, however, that the Court should apply a volumetrics approach for dividing the harm.

EPA and Uniroyal assert that Hercules cannot establish that the harm is divisible because of the extensive cross-

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[19] Operable unit means a discrete action that comprises an incremental step toward comprehensively addressing site problems. This discrete portion of a remedial response manages migration, or eliminates or mitigates a release, threat of a release, or pathway of exposure. The cleanup of a site can be divided into a number of operable units, depending on the complexity of the problems associated with the site. Operable units may address geographical portions of a site, specific site problems, or initial phases of an action, or may consist of any set of actions performed over time or any actions that are concurrent but located in different parts of a site.
40 C.F.R. § 300.5.

contamination and commingling of dioxin and other hazardous substances throughout all areas of the Site. They note that Hercules' operations and extensive waste disposals at the Plant and on other areas of the Site from 1961 to 1971 contributed massive amounts of dioxin and other hazardous substances to the Site. Furthermore, Hercules also owned the Plant during the first five years of Transvaal/Vertac's operations there, and it is therefore legally responsible under CERCLA for Vertac's waste disposals during the period from 1971-1976.

The EPA divided the Site into separate operable units for purposes of facilitating the remediation. The attempt to apportion the harm based on operable units was rejected by the court in *United States v. Manzo,* 279 F.Supp.2d 558, 574 (D.N.J.2003). "An operable unit is 'a discrete action that comprises an incremental step toward comprehensively addressing site problems.' 40 C.F.R. § 300.5. It is not a site, although it 'may address geographical portions of a site.'" Furthermore, in *Manzo* as here, the operable units did not solely address geographical portions of the Site.[20]

The Court is not persuaded that EPA's selection of remedial actions alone is a basis for dividing the harm. *See Washington v. United States,* 922 F.Supp. 421, 428 (W.D.Wash.1996)(EPA's selection of remedial actions provides no basis for apportioning harm)

The Court will proceed to address the arguments raised by Hercules, and determine whether there is a basis to divide the harm in each of the areas.

Drummed Wastes

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[20] Randal Maud, Hercules' expert in environmental remediation and Project Manager at the Site, testified that the Site was divided into "logical areas of study." At first Operable Unit 1 was all engineering structures above the land surface and Operable Unit 2 was everything at land surface and below. Ground water was spun off into a separate operable unit for administrative purposes. 2001 Tr. at 2068-69.

As discussed above, when EPA arrived at the Site after Vertac abandoned in it found over 28,000 drums of waste stored on the Site. The drummed wastes were incinerated as part of a series of continuing removal actions that the State of Arkansas and the EPA began in 1987.

There is no dispute that the 2,4-D waste drums were accumulated on the Site beginning in late 1979, at least three years after Hercules had sold the plant site to Vertac. Had the drums merely contained identifiable 2,4-D wastes, the Court might find that Hercules' divisibility of harm argument had merit. But, because they contained other hazardous substances which were produced while Hercules owned the plant, Hercules must demonstrate a basis for finding the harm divisible.

Hercules makes several arguments to support its contention that it is not liable for the incineration of the drummed wastes. It has consistently contended that the approximately 25,000 drums of 2,4-D waste and approximately 3,000 drums of 2,4,5-T still bottoms left behind when Vertac abandoned the Site on January 31, 1987, were each "distinct" harms, to which Hercules did not cause EPA's response costs.

Dioxin was found in the drums. The United States posits two sources of contamination of the 2,4-D drums with TCDD, TCDF,2,4,5-T and 2,4,5-TP One is the cross-contamination from the equipment, especially equipment used in both the production of 2,4-D and 2,4,5-T. The second source is the contaminated soil, trash, debris and other materials placed into the drums during the multiple overpackings. The soil could have been contaminated with dioxin produced during Hercules' operation of the plant. No one can say that the dioxin in the "D" drums did not come from Hercules.

Despite Hercules' contention that the drums didn't leak, there is ample evidence to show that the drums of 2,4,5-T still bottoms did leak on the ground when Hercules owned the

plant.[21] The on-site soils, especially, in the process area, contained hazardous chemicals.[22]

The soil was contaminated with wastes generated by Hercules and Vertac. The drummed wastes stored on site leaked at one time or another and had to be overpacked. During overpacking, the chemical material that had leaked out on to the soil would be scooped up and put into the overpacked drum. Thus, the D-drums most likely contained soil contaminated by Hercules' operations which had been scooped up when the corroding drums were overpacked.

Hercules argues that it could not have caused the waste to be contaminated through the production process or through the placement of contaminated dirt into the drums at a later date. With regard to the production process, Hercules argues that it thoroughly cleaned out the production vessels in 1970, while looking for a buyer or lessee.

The same equipment was used to produce 2,4,-D and 2,4,5-T. Testimony at the hearing revealed that the cleanup of the equipment was not as thorough as portrayed by Hercules, and that the plant equipment was cross-contaminated with 2,4-D, 2,4,5-T and dioxin.[23]

Hercules also relies on a "flushing theory," i.e., that the thousands of batches of material Vertac ran through the production vessels would have thoroughly flushed the dioxin from the vessels to the point when it would be virtually non-existent.[24] Thus, there should not have been, according to

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[21] Robert Fisher, a chemist with Hercules and Vertac, and one of the persons considered most knowledgeable about Hercules' operations, testified that the deterioration of the T drums was one of the major sources of dioxin contamination at the Site. 2001 Tr. at 907.

[22] *See* e.g. Remedial Investigation and Feasibility Study for OU-2.

[23] *See* discussion of clean-up of OU-1, *infra*.

[24] According to the "flushing theory," if one makes a batch of 2,4,5-T and leaves 10% of the 2,4,5-T in the process vessel, each subsequent batch of

Hercules, any residual contamination in the 2,4-D drums which were generated and stored by Vertac between the fall of 1979 and 1986.

Hercules' flushing theory remains just that--a theory. It has not been subjected to scientific testing and validation. Rather the evidence basically disproves the theory. After nearly eight years of only 2,4-D production, dioxin and 2,4,5-T were present in the plant equipment.

Hercules contends that the presence of dioxin in the 2,4-D waste drums did not influence the decision to incinerate. Hercules points to testimony by Dr. Phyllis Moore, Director of the ADPC & E, who made the initial decision to incinerate the drums, that the presence of dirt in the drums did not influence the decision to incinerate.[25] Hercules further argues that the placement of contaminated dirt into the drums would constitute a separate "disposal" of hazardous substances under CERCLA. Additionally, the redrumming efforts took place after August, 1976, when Hercules sold the plant to Vertac and therefore Hercules had nothing to do with the redrumming efforts.

None of these arguments withstand scrutiny. A number of witnesses, particularly from the State, testified about the rationale for incineration. There was no doubt that the drummed wastes presented a hazard to the area. EPA and the State of Arkansas were concerned that because of the manner in which the drums were stored, the risk of fire and explosion, as well as the possibility of tornadoes, could spread the dioxin into the environment. Additionally, witnesses testified that because time was of the essence, testing a large number of the

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2,4-D made would reduce the amount of 2,4,5-T in the product such that in the period of time from 1971 to 1979 there would be less than one molecule remaining in any initial residual material. 2001 Tr. at 366-367.

[25] Dr. Moore testified that the issue of "dirt" did not influence the decision. 2001 Tr. at 279. However, she stated that the major concern with the drums was the presence of dioxin. 2001 Tr. at 282.

drums to determine whether dioxin was present would have been costly and time-consuming.[26] It was not, as Hercules argues, the dirt in the drums that drove the incineration; rather it was the dioxin in the dirt that drove the incineration of the drums.

Hercules also attacks the validity of the tests. The Court is not in a position to discredit the testing procedures or results. Witnesses from all parties maintained different positions with regard to the testing results. The Court cannot find as a matter of law that certain test results were not reliable.

Hercules advances other innovative arguments to support its contention that it did not cause some of the drums to be contaminated with dioxin. One of these is that the placement of the dirt into the drums is in itself a separate disposal.

"Disposal" under CERCLA has the same meaning as "disposal" under the Solid Waste Disposal Act. 42 U.S.C. § 9601(29) The Solid Waste Disposal Act defines " "disposal" as the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water so that such solid waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including ground waters." 42 U.S.C. § 6903(3). Hercules "disposed of" hazardous substances because it placed those hazardous substances in a manner that allowed them to enter the environment. Attempts to further subdivide actions in an attempt to escape liability borders on the absurd.

Hercules also argues that it is relieved of liability under the doctrine of "superseding cause." *Restatement (Second) of Torts,* § 440. Comment b. It points to a number of actions taken which would relieve it of responsibility.

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[26] *See e.g.* 2001 Tr. at 542, 1787.

The Court cannot find that "superseding cause" is a basis for divisibility. The Restatement must be followed "only to the extent that it is compatible with the provisions of CERCLA." 247 F.3d at 717. Recognizing a "superseding cause" theory in this situation "would not be compatible" with the strict liability provisions of CERCLA. Even assuming the theory is applicable in CERCLA cases, it is not applicable here.

> The mere fact that other causes intervene between the original act of negligence and the injury for which recovery is sought is not sufficient to relieve the original actor of liability, if the injury is the natural and probable consequence of the original negligent act or omission and is such as might reasonably have been foreseen as probable. *Butler v. Arkansas Power & Light Co.,* 186 Ark. 611, 54 S.W.2d 984 [(1932)]; *Arkansas Power & Light Co. v. Marsh* [195 Ark. 1135, 115 S.W.2d 825 (1938)], *supra; Hayes v. Missouri Pac. R.R. Co.,* 208 Ark. 370, 186 S.W.2d 780 (1945). The original act or omission is not eliminated as a proximate cause by an intervening cause unless the latter is of itself sufficient to stand as the cause of the injury. *Butler v. Arkansas Power & Light Co., supra; Arkansas Power & Light Co. v. Marsh, supra.* The intervening cause must be such that the injury would not have been suffered except for the act, conduct or effect of the intervening agent totally independent of the acts or omission constituting the primary negligence.

Pollard v. Union Pacific R. Co., 75 Ark.App. 75, 79, 54 S.W.3d 559, 562-63 (Ark.App.2001)

Here, the Court cannot find that the harms associated with the drummed wastes, i.e., the contamination, would not have occurred except for the totally independent acts of EPA, the State of Arkansas, or Vertac.

"Moreover, the intervening act or omission of a third person is not a superseding cause when the original actor's negligent conduct is a substantial factor in bringing about an injury, if the actor, at the time of his negligent conduct, realized that a third person might so act or if the intervening act is a normal response to a situation created by the actor's conduct and the manner in which it is done is not extraordinarily negligent." *Ouachita Wilderness Institute, Inc. v. Mergen,* 329 Ark. 405, 415, 947 S.W.2d 780, 785 (Ark.1997). There is no evidence that any action of any other person or entity was "extraordinarily negligent" so as to relieve Hercules of liability.

Hercules has not demonstrated that the drums did not contain any hazardous substances that Hercules produced. Hercules cannot show that any of those hazardous substances in the drums that were attributable to Hercules can be distinguished from the hazardous substances in the drums that were attributable to Vertac. There is evidence of cross contamination of equipment. Vertac and Hercules used the same equipment to make 2,4,-D and 2,4,5-T. Subsequent years of only 2,4,-D production did not rid the equipment of dioxin. Dioxin was present in the soils; contaminated soil was placed in the D-drums when they were overpacked. The soil, dust, shredded pallets, shredded trash and the process areas were permeated with TCDD, TCDF, 2,4-D, 2,4,5-T, 2,4,5-TP, chlorinated benzenes and other hazardous wastes. The drum overpacking process therefore added TCDD, TCDF and other hazardous substances into the 2,4-D waste drums. The inner drums continued to corrode, combining the contents of the inner drums with those used in the overpacking.

Hercules cannot establish that it was not responsible for the dioxin in the soil which was ultimately placed in the drums. Even Hercules' expert witnesses, Robert Fisher and Douglas Keilman, both of whom worked for Hercules could not say that the source of the dioxin in the "D" drums did not

come from Hercules.[27]

The Court finds that Hercules has not provided any concrete and specific evidence that the hazardous substances in the drums were "distinct" such that Hercules should not be held responsible for the costs incurred with the incineration of the drummed wastes.

OU-1 (Above Ground Media)

Hercules argues that the Court must look to the remedies chosen and the situations which created the need for those remedies to determine whether the harm is divisible with respect to OU-1. Hercules divies up OU-1, declaring that it is responsible for some harm but not for other.[28] That is, the several different media should be characterized as "distinct" environmental harms.

Hercules contends that it cannot be held responsible for hazardous materials in the tanks, vessels and equipment. It claims that it removed all of its hazardous wastes when it completely disassembled and cleaned out all the plant equipment in 1971. Testimony at the hearing revealed that the cleanup of the equipment was not as thorough as portrayed by Hercules, and that all hazardous wastes were not removed.[29]

Furthermore, that Hercules cleaned the plant in 1971 is irrelevant, because Hercules is liable as an owner while it leased the plant to Transvaal. As an owner, it is responsible for the contamination attributable to Transvaal's operations. *See Nurad, Inc. v. William E. Hooper & Sons Co.*, 966 F.2d

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[27] 2001 Tr. at 907-908. *See also* testimony of Steven Quigley, an expert in environmental engineering for Uniroyal, who opined that there is no way to identify the source of the 2,3,7,8-TCDD in the D drums. 2001 Tr. at 1940.

[28] It accepts responsibility for the costs related to the spent carbon.

[29] *See* testimony of Reedie Ray, a former Hercules plant worker who was involved in the plant cleaning process. 2001 Tr. at 1369.

837, 846 (4th Cir.1992) *cert. denied sub nom., Mumaw v. Nurad, Inc.*, 506 U.S. 940 (1992)(§ 9607(a)(2) imposes liability on owner of facility at time disposal of hazardous waste); *United States v. R.W. Meyer, Inc.*, 889 F.2d 1497, 1507 (6th Cir.1989), *cert. denied*, 494 U.S. 1057 (1990).

In addition to its argument concerning the 1971 plant cleanup, Hercules relies on its "flushing theory" to establish that the hazardous substances found in the equipment were not its own. As discussed above, the theory is not valid. That 2,4,5-T and dioxin were found in the equipment after 8 years of just 2,4-D production disproves Hercules' theory.

Similarly, Hercules cannot establish that it was not the source of the contamination on the shredded trash and pallets. The pallets, which were used to store drummed wastes at the site, became contaminated with the 2,4,5-T, 2,4- D and dioxin leaked from the drums.[30] The pallets also became contaminated because they were in contact with the contaminated soil.

Hercules also contaminated the buildings. Dioxin was found in leachate from the buildings.[31] Wipe samples from the buildings in OU-1 revealed reportable quantities of dioxin. Dioxin was found in storage vessels.[32] The 1974 Sputnik eruption contaminated nearby buildings.

Hercules contends that the threat posed by the plant buildings was the threat of collapse, as well as asbestos contained in some building materials. Hercules argues that it did not cause these threats. Vertac, in abandoning the plant and letting it fall into disrepair, was responsible for the possibility of building collapse. The United States was responsible for asbestos being in the buildings when it built

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[30] *See* exhibit 1149.

[31] 2001 Tr. at 1771.

[32] *See* Exhibits 1149 and 1150.

them to house the Arkansas Ordnance Plant.

Hercules is wrong. Asbestos was not the cause for the remediation. The buildings were demolished because the risk of collapse might cause release and human exposure to herbicide process contamination, including unacceptable levels of TCDD.

In sum, Hercules has not presented evidence to demonstrate that it was not the source of the 2,4,5-T and dioxin in the above-ground media, and therefore it is responsible for the costs incurred with regard to OU-1.

OU-2 (Soils, Foundations and Underground Utilities)

Hercules argues that the harm at OU-2 can be characterized as "successive." Hercules contends that the principles of *Bell Petroleum* apply with regard to OU-2. According to Hercules, dioxin, a single harm, drove the remedy. Synergistic effects, relative toxicity or differential migratory potential are not factors. The contribution of each harm can be reasonably estimated based on the production volume of 2,4,5-T and 2,4,5-TP. Hercules would apportion harm based on the production records of the 2,4,5-T and 2,4,5- TP that Hercules and Vertac produced during the years each of them owned the plant.

According to the OU-2 Record of Decision ("ROD"), extensive dioxin contamination was found in soils in the blowout area, the east drum storage area, around and to the east of the broiler house, in the area of the existing and former chlorination plants, and around the maintenance area. Other contaminants of concern such as chlorophehols, chlorobenzenes and chlorophenoxyacids were also found throughout the Site soils, in relative concentrations paralleling dioxin concentrations.[33]

"Where, as in this case, hazardous substances are

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[33] *See* ROD for OU# 2, Exhibit 6815, p. 30-35.

commingled, a defendant cannot rely on merely volumetric evidence. Evidence must be produced 'disclosing the individual and interactive qualities of the substances deposited' at the Site." *United States v. Vertac,* 966 F.Supp. 1491, 1504 (E.D.Ark.1997) (quoting *United States v. Monsanto Co.,* 858 F.2d 160, 172 (4th Cir.1988), *cert. denied,* 490 U.S. 1106 (1989)). Additionally, proof of "relative toxicity, migratory potential, degree of migration and synergistic capacity" of the hazardous substances at the Site is relevant to the divisibility of harm inquiry. *United States v. Alcan Aluminum Corp.,* 315 F.3d 179, 186 (2d Cir.2003) (citation omitted) "[T]he volume of waste of a particular generator is not an accurate predictor of the risk associated with the waste because the toxicity or migratory potential of a particular hazardous substance generally varies independently of the volume ..." *United States v. Chem-Dyne Corp.* 572 F.Supp. 802, 811 (S.D.Ohio 1983).

EPA contends that the Hercules has failed co present accurate production records. Hercules counters that exact numbers are not necessary; estimates suffice if they form a reasonable basis for apportioning the harm. "If the expert testimony and other evidence establishes a factual basis for making a reasonable estimate that will fairly apportion liability, joint and several liability should not be imposed in the absence of exceptional circumstances." *Bell Petroleum,* 3 F.3d at 903.

EPA asserts that Hercules' reliance on sales records does not establish a reasonable basis for dividing the harm. Estimates of production were made because some of the production records were lost. Unlike the pure volumetric approach in *Bell,* the sales records fail to adequately account for all the production. They do not account for product made and not sold, off-spec material disposed of at the Site, or for operational and waste disposal differences.

The volumetric approach presupposes that leaks and spills took place at roughly the same amount and same

frequency and severity during the production of 2,4,5-T and 2,4,5-TP. Douglas Keilman, Hercules' project manager involved in the remediation and an expert witness for Hercules, conceded that in order to use volumetric evidence, he had to assume that the release of hazardous substances was constant over time.[34] If that assumption is correct, then, according to Hercules, the amount of dioxin contributed to the soils would be roughly proportionate to the production volume. Based on its calculations, Hercules contends that it is responsible for 70.74% of EPA's response costs for OU-2.

The evidence, however, does not support the assumption on which Hercules relies. There is no way to quantify the releases of wastes at the Site with production volumes, and there was not a constant ratio or direct correlation between the two. Leaks and spills occurred regularly during the years Hercules owned the Site. Production methods differed over the years, resulting in differences in the amount of waste generated. Until 1966, Hercules operated a blower or dryer at the acid plant that spewed dioxin-bearing flaked acid material around the Site. Thus, according to EPA, more TCDD would have been in the waste than in the product after Hercules installed the toluene wash process. The DOD changed the specifications for the formulation of Agent Orange during the time it was produced, precluding the assumption that the ratio of waste to production volume remained constant. The concentration of active ingredients in the DOD product was different than that in the commercial product. Additionally, waste disposal methods differed, with some methods producing more contamination than others.[35]

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[34] 2001 Tr. at 1323-24.

[35] For example, Hercules used a "tee-pee" burner to dispose of its filter paper and cardboard drums that were contaminated with hazardous substances. The tee-pee burner was essentially a device for open burning. It was a large metal structure with a screen on the top, about 30 to 40 feet tall. 2001 Tr. at 143, 740. The filter paper was coated with 2,4,5- T, 2,4-D, as well as other chlorinated hydrocarbons. 2001Tr. at. 345-46. The cardboard drums contained TCB, a chlorinated hydrocarbon which may

The sputnik eruptions reveal the difficulty in relying on volumetrics as a basis for divisibility of harm, and point to the conclusion that production is not directly correlated to the release of waste. The evidence reveals that there were as many as twenty sputnik eruptions at the Site while Hercules owned the plant, and another ten when it leased the plant to Transvaal. The eruptions spread dioxin over the Site and Off-Site areas. The worst eruption occurred in 1974 when Transvaal leased the Site from Hercules.[36]

Here there were differences in the operations, as well as the generation and disposal of wastes, making this situation unlike that in *Bell Petroleum*, where there was only one media and one manner of disposal. There is no evidence in this case that the generation of waste was proportional to the production of product.

The manufacturing process at the Site yielded hazardous substances other than dioxin. Hercules has provided no evidence regarding the effect of these other substances on the migration or transport of dioxin. It has presented no evidence regarding the relationship between the volume of dioxin or other hazardous substances generated, the release of dioxin or other hazardous substances, and the harm at the Site.

Hercules did not present evidence of the relative toxicity, migratory potential and degree of migration, and synergistic effects or capacities of the various hazardous substances deposited at the Site. It contends they are irrelevant as the decision to remediate was based solely on dioxin. Thus, these factors did not come into play in the selection and implementation of remedies.

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produce dioxins when burned. The release of hazardous substances into the air resulting from the burning may have caused an unknown amount of dioxin contamination at the Site. Vertac did not burn any wastes on the Site.

[36] 2001 Tr. at 885. The most serious process upset was the 1974 sputnik eruption in terms of generation of dioxin.

Hercules' argument essentially places the burden on EPA to prove it considered the "synergistic effects" and that its failure to include mention of it in the ROD means that there is no need for Hercules to present evidence. While EPA may not have referred to synergistic effects of various contaminants, it did consider the various hazardous substances present at the Site, not relying solely on dioxin.

As the court cautioned in *Monsanto,* "[v]olumetric contributions provide a reasonable basis of apportioning liability *only if* it can be reasonably assume, or it has been demonstrated, that independent factors had no substantial effect on the harm to the environment." *United States v. Monsanto Co.,* 858 F.2d 160, 173 n. 27 (4th Cir.1988)(emphasis added). Hercules has not demonstrated that independent factors had no substantial effect on the harm.

For example, according to the testimony at the hearing, the half-life of dioxin is affected by different conditions.[37] Hercules did not present any evidence as to the rate the dioxin broke down at the Site and Off-Site areas based on photolysis, dissipation and other factors. It did not present any evidence of possible synergistic effects of the combinations of dioxin with other toxic materials, such as 2,4-D and 2,4,5-T. In sum, the Court finds that Hercules has not established a basis to divide the harm at OU-2.

Off-Site Areas

The Off-Site areas include soils, the floodplains and stream sediments of Rocky Branch Creek and Bayou Meto, sanitary sewer lines, and two municipal sewer plants and their structures. Hercules posits that the Off-Site environmental harm can be characterized as "successive." As with OU-2, Hercules states that because the remedy was based entirely on the presence of dioxin, the synergistic effects, relative toxicity, and differential migratory potential were not factors.

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[37] 2001 Tr. at 1195.

Hercules argues that the production volumes of Hercules and Vertac for 2,4,5-T and 2,4,5-TP are a basis to find divisibility of harm. Hercules further contends that because Hercules and Vertac never owned or operated these off-site areas, their respective liabilities can only be as an "arranger."

That Hercules did not own the off-site areas does not mean that it can only be held liable as an "arranger." CERCLA defines "facility" broadly to include:

> (A) any building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or publicly owned treatment works), well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock, or aircraft, or (B) any site or area where a hazardous substance has been deposited, stored, disposed of, or placed, or otherwise come to be located; but does not include any consumer product in consumer use or any vessel.

42 U.S.C. § 9601(9). The Plant Site and Off-Site areas are not distinct facilities, but are one facility for purposes of liability under CERCLA..

The definition of facility "applies not only to traditional waste sites ... but also to any 'area' in and around which hazardous substances have 'come to be located ... '" *Axel Johnson, Inc. v. Carroll Carolina Oil Co., Inc.* 191 F.3d 409, 417 (4th Cir.1999) (citations and internal quotations omitted).

The Tenth Circuit recently reviewed how federal courts have interpreted "facility" under CERCLA, finding that

> the circuits that have applied the defined term "facility" have done so with a broad brush. *See Uniroyal Chem. Co.,* 160 F.3d at 245 (applying broad definition of facility in an action under § 107 and stating "[i]n examining the contours of § 9601(9), it is apparent that facility is defined in the broadest possible terms, encompassing far more than

traditional waste sites. It expressly includes buildings, pipelines, motor vehicles, rolling stock, wells, and aircraft. 42 U.S.C. § 9601(9)(A).") (emphasis supplied); *United States v. Rohm and Haas Co.*, 2 F.3d 1265, 1279 (3d Cir.1993) (examining liability under § 107 and noting "we think it evident from the broad statutory definition of 'facility' that Congress did not intend EPA to be straight-jacketed in this manner in situations involving a release transcending property boundaries"); *3550 Stevens Creek Assocs. v. Barclays Bank of Cal.*, 915 F.2d 1355, 1360 n. 10 (9th Cir.1990) (determining liability under § 107 and noting broad construction of the term "facility," "such that in order to show that an area is a 'facility,' the plaintiff need only show that a hazardous substance under CERCLA is placed there or has otherwise come to be located there") (internal citations omitted); *New York v. Shore Realty Corp.*, 759 F.2d 1032, 1043 n. 15 (2d Cir.1985) ("CERCLA defines the term 'facility' broadly to include any property at which hazardous substances have come to be located"); *see also Quaker State Minit-Lube, Inc. v. Fireman's Fund Ins. Co.*, 52 F.3d 1522, 1525 (10th Cir.1995) (In a § 9607 action, "[t]he EPA designated the Ekotek Site [consisting of three surface impoundments, piles and pits of waste material, underground tanks, and an underground drain field] a CERCLA facility pursuant to 42 U.S.C. § 9601(9) because of contamination by hazardous substances.") (emphasis supplied).

In a § 107 action, the Fourth Circuit noted that simply because "a property could be divided [into multiple facilities] does not, however, mean that it must be so divided for CERCLA purposes." *Axel Johnson, Inc. v. Carroll Carolina Oil Co.*, 191 F.3d

409, 418 (4th Cir.1999). There, the hazardous substances were not located only in the storage tanks and their associated spill areas; rather, they were located throughout the property. The court, after noting the "untenability of the contention that anything that could be designated as a separate facility must be so designated," applied the broad definition of facility, and noted that "[n]o court has held ... that any area that could qualify as a facility under the definition must be considered a separate facility." *Id.* at 417-18 (emphasis supplied); *see also Tyson,* 299 F.Supp.2d at 709 (treating plant or "an area [that] is managed as a whole ... [as] a single facility for CERCLA purposes").

We recognize that in a § 107 action, the hazardous substances may have contaminated large parts of a plant, while initially being emitted from only one tank. *See Axel Johnson,* 191 F.3d at 417. However, the underlying purpose of § 103, that is, the alerting of government officials of a potential hazardous substance release that may require federal and local government response assistance, is best served through treating the Dorman Farm as a single facility. Solely owned by Seaboard, it is managed and operated as one facility, with one particular site purpose (producing swine products). *See also Akzo Coatings, Inc. v. Aigner Corp.,* 960 F.Supp. 1354, 1359 (N.D.Ind.1996) (rejecting the argument that each contamination source is a separate facility because such argument "could have disastrous consequences, for ultimately every separate instance of contamination, down to each separate barrel of hazardous waste, could feasibly be construed to constitute a separate CERCLA facility"), *aff'd in part, vacated in part by,* 197 F.3d 302 (7th Cir.1999); *Quaker State Minit-Lube,* 52 F.3d at

> 1525 (10th Cir.1995) (entire site, which consisted of surface impoundments, piles and pits of waste material, underground tanks, and an underground drain field considered a facility for § 9607); *Cytec Indus. v. B.F. Goodrich Co.*, 232 F.Supp.2d 821, 836 (S.D.Ohio 2002) ("This court concludes that usually, although perhaps not always, the definition of facility will be the entire site or area, including single or contiguous properties, where hazardous wastes have been deposited as part of the same operation or management."); *Clear Lake Props. v. Rockwell Int'l Corp.*, 959 F.Supp. 763, 767-68 (S.D.Tex.1997) (rejecting an attempt to create unnatural boundaries between a building and the site on which it is located).

Sierra Club v. Seaboard Farms Inc., 387 F.3d 1167, 1174-1175 (10th Cir.2004) (finding that farm complex as a whole, as opposed to every barn, lagoon and land application area on complex, constituted single "facility" under CERCLA)

In this case, the contamination from the Site migrated to the contiguous off-site areas. Hercules contributed to the contamination of the off-site areas when it operated the Plant Site from 1961 to 1971 and when it leased the Plant Site to Transvaal from 1971 to 1976, during which time Transvaal's operations further contaminated the Plant Site and Off-Site Areas. Therefore, Hercules is liable as an owner under section 107(a)(2) for contamination in the Off-Site Areas.

The Court has already discussed the flaws with applying a volumetrics approach to the divisibility of harm with regard to OU-2. The same analysis applies to the Off-Site areas. The Court cannot find that the harm at the Off-Site areas is divisible based on production volumes.

OU-3 (Groundwater)

Hercules states that it did not cause the groundwater contamination which resulted from Vertac's ownership and

operation of the Site after August, 1976. Hercules contends that the response costs associated with the remediation of groundwater contamination are divisible as a successive harm. Generalized organic compounds drove the remedy and, according to Hercules, the costs can be apportioned based on volumetrics because there are no synergistic or interactive effects of the chemicals of concern, i.e., organics, upon each other. That is, the amount of organic chemicals generated in the production process, which would have been the source of contamination of the groundwater, would have been proportional to total production volume of all products, not just 2,4,5-T and 2,4,5-TP. Furthermore, Hercules contends that the manufacturing processes did not change materially over the time that Hercules and Vertac operated the plant. Here, Hercules posits that the Court should use total production volume to determine the amount of harm caused by Hercules.

The flaws associated with Hercules' volumetrics approach discussed above apply equally to its argument with respect to groundwater contamination. Furthermore, the evidence supports a finding that Hercules disproportionately contaminated the groundwater. There is no dispute that thousands of drums of 2,4-D and 2,4,5-T were buried on site during the time Hercules owned the Site. The burying of such wastes in unlined pits contributed to the groundwater contamination at the Site.

Furthermore, when Hercules operated the Site, waste was poured into a well, resulting in contamination of the groundwater.[38] Hercules is liable for the contamination of the groundwater, not only as a result of its practices, but those of Transvaal. "[G]round water contamination at the site is complex, resulting from past water management and disposal practices. Sources of contamination include on-site landfills, spills and discharges into the central ditch, Reasor Hill well,

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[38] 2001 Tr. at 1968-69.

and other parts of the central process area."[39] The dioxin spewed from the sputnik eruption in 1974 contaminated the groundwater.[40] Sputnik waste which was probably contaminated with dioxin was dumped in the marshy area adjacent to the Boiler House.[41] Furthermore, the record establishes that Hercules' operations contaminated other areas encompassed by OU-3, such as the process area and soils, including areas on the east side of the central ditch.

Hercules tries to distinguish the drum burial areas from OU-3. Such an attempt is without merit. It admitted that it was liable for ground water contamination. Hercules buried drums containing hazardous wastes on site. The OU-3 remedial includes the burial areas and Hercules is responsible for the contamination resulting from the burial of the drums.[42]

The contaminants of concern in the ground water were released and disposed by Reasor-Hill, Hercules and Transvaal/Vertac. Hercules has not produced any specific evidence upon which to divide the harm.

Landfills

As Hercules never owned or operated the two landfills, its liability arises as an arranger for the disposal of hazardous substances at the landfills. Hercules argues that there is no evidence that it ever disposed of CERCLA hazardous waste at the landfills.

Rogers Road Landfill

The Rogers Road Landfill is a ten-acre tract that the City of Jacksonville acquired on September 16, 1953. Hercules contends that it did not send any of its waste, garbage or trash

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[39] Exhibit 6854, ROD for OU# 3, at p. 31.

[40] *See* Exhibit 7513 at p. 124.

[41] 2001 Tr. at 1245.

[42] *See* Exhibit 6854, ROD for Operable Unit # 3.

to the Rogers Road Landfill because it was closed during the years that Hercules operated the plant. Hercules states that the Rogers Road Landfill was opened from 1953 until 1959, closed between 1959 and 1973, and then reopened for a brief period from 1973-1974. The exact dates that the landfill was open are unclear; the Eighth Circuit in *O'Dell v. Hercules, Inc.*, 904 F.2d 1194, 1197 (8th Cir.1990) found that "[t]he Rogers Road landfill had been closed by the city of Jacksonville in 1959. However, unofficial dumping occurred at Rogers Road."[43]

Fifteen to 50 drums of dioxin contaminated waste were disposed of at the landfill. They were not labeled and were very corroded.[44] Hazardous substances identical to those generated by Hercules at the Site were found at the landfill, including 2,3,7,8-TCDD, 2,4-D, 2,4,5-T, and 2,4,5-TP.[45] In addition, Dieldrin, an herbicide produced by Reasor-Hill, was found.

EPA in the ROD concluded that no detailed records were found to prove how the contaminants of concern were placed at the landfill.[46] To establish Hercules' liability for harm at the Rogers Road landfill, EPA relies on the testimony of Alsie Glover, who lived next door to the Rogers Road landfill and in between it and the Graham Road landfill. She testified in the *O'Dell-Bridges* trial that the Rogers Road Landfill was opened from 1961 to 1967 and accessible during the years

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[43] *See also* Exhibit 8099, Technical Assistance: Rogers Road Landfill. "From 1953 until 1974, approximately one-half of the site was used intermittently as a municipal waste disposal facility and an open dump." *But see* 2001 Tr. at 349, deposition testimony of Stephen Veale, remedial project manager for EPA, who stated that Rogers Road was opened from 1953 to 1959, closed from 1959 to 1973 and then open again in 1973 to 1974.

[44] Exhibit 6895, ROD for Rogers Road Landfill, pg. 1-4.

[45] *Id.* at 1-32.

[46] AR001821.

Hercules operated its Jacksonville Plant.[47] She saw barrels at the Rogers Road dump with the name "Hercules Manufacturing Company."[48] Photographs of the drums at the landfill reveals no such labels or markings. The ROD states that there were no discernable markings on the drums.[49]

Vincent Dodson, who worked for Hercules from the summer of 1967 through 1969, testified in the *O'Dell-Bridges* trial that the 55-gallon barrels he took to the Graham Road landfill did not have Hercules' name or logo.[50] Duane Reel, who was city engineer for the City of Jacksonville during the time of the remediation, testified that the drums he observed at the landfill did not have any labels on them.[51] Martin Swanson, a remedial project manager for the Jacksonville Site, testified that there were no marking on the drums at the Rogers Road landfill and that there were no materials at the landfill that had Hercules markings on them.[52] Billy Roberts began working for Reasor-Hill in 1954, and worked almost continuously at the Site for 48 years.[53] He stated that Reasor-Hill disposed of its filter paper at the landfill. He recalled going to Rogers Road once and to the Jacksonville landfill twice for Reasor-Hill. He could not state definitely that he ever went to Rogers Road for Hercules.[54]

Also supporting Hercules' position that it did not dispose of wastes at Rogers Road is the presence of dieldrin. Dieldrin

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[47] 2001 Tr. at 165.

[48] 2001 Tr. at 171.

[49] Exhibit 6895, p. 1-4.

[50] Testimony of Vincent Dodson, *O'Dell-Bridges* trial, Feb. 16, 1988, p. 277.

[51] 2001 Tr. at 151.

[52] 2001 Tr. at 1524.

[53] 2001 Tr. at 2050.

[54] 2001 Tr. at 2054-55.

was produced by Reasor-Hill, who operated the Site during the time the Rogers Road landfill was opened. EPA states that He[illegible]s may have disposed of some of the Dieldrin wastes [illegible] had been left by Reasor-Hill when Hercules purchased the plant. This, of course, is speculation. It is equally, if not more plausible, based on the testimony of Billy Roberts, that Reasor-Hill disposed of the chemical wastes at the landfill.

The Court also notes that the residents around the landfills used empty barrels for their personal use, such as for burning trash or for barbecue grills. They also used the landfill to dump their wastes. It is quite possible that the barrels could have been placed in the landfill by the residents.[55]

The Court finds that Hercules has met its burden of establishing that it is not responsible for the harm caused at the Rogers Road landfill. Thus, Hercules will not be responsible for the costs incurred by the government with respect to the Rogers Road landfill.

Jacksonville Landfill (also known as the Graham Road Landfill or City Dump)

The Jacksonville Municipal Landfill Superfund Site is an eight-acre plot purchased by the City of Jacksonville in June, 1960. The landfill has been referred to as the Jacksonville Landfill, the Graham Road Landfill, the Graham Road Dump and the Jacksonville City Dump. About forty of the eighty acres were used by the City for landfilling until the landfill was closed in 1973.[56]

Between 15 and 50 drums were disposed of in an area referred to as the "drum disposal area," located behind the pipeline on the south end of the landfill property. "Most of

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[55] 2001 Tr. at 66-67, 191-194.

[56] AR002384.

the drums have corroded completely away, leaving piles of white, fibrous, adsorbent-type materials."[57] The contaminants of concern that were detected were 2,3,7,8-TCDD, 2,4-D, 2,4,5-T, 2,4,5-TP and 2,4- DCP.[58]

Hercules admits that it took some waste to the Graham Road Landfill. However, Hercules states that the trash that was taken did not contain hazardous substances. Thus, Hercules contends that it was not responsible for the presence of the hazardous substances, particularly the filter paper in which the chemicals of concern were found, at the Jacksonville Landfill.

The Court need not dwell long on Hercules' argument. The record is replete with testimony of Hercules' employees who took chemical wastes to the "city dump." Vincent Dodson, who worked for Hercules in the late 1960s, testified that chemical wastes, including those that came from leaks and spills and the Sputnik explosions, were scooped up, placed in barrels and dumped at the Jacksonville landfill.[59] Doyce Shurley, who worked for Hercules in the early 1960s, remembered going to the Jacksonville Landfill two or three times for Hercules to dispose of trash. He believed that he once disposed of a barrel of toluene stillbottoms.[60] Billy Honey also testified that when he worked for Hercules he hauled drums which contained chemical waste to the Graham Road landfill.[61] Similarly, LeRoy Jordan confirmed that he disposed of both liquid and solid waste barrels at the Graham Road site for Hercules.[62]

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[57] AR002389.

[58] AR002396-97.

[59] 2001 Tr. at 55, 70.

[60] 2001 Tr. at 212.

[61] 2001 Tr. at 144, 146-147.

[62] 2001 Tr. at 200-202.

That the drums only contained filter paper, as Hercules contends, does not absolve Hercules of arranging for the disposal of hazardous substances. Filter paper was used in the manufacture of 2,4-D, 2,4,5-T, and 2,4,5-TP and Hercules used it in its product formulation. Filter paper was caked with various wastes including TCDD.

Hercules also relies on "geographic considerations" as a basis for limiting its harm. In *United States v. Township of Brighton,* 153 F.3d 307, 320 (6th Cir.1998),the court stated that if the Township "could show that its 'operating' activities were completely limited to a discrete and measurable section of the property, and that the releases onto or from that section represented a discrete and measurable harm, this would provide a reasonable basis for apportionment."

The non-contiguous areas, according to Hercules, are the north and south sides of the Jacksonville landfill, areas which were divided by a natural gas pipeline and opened for use at different times. It contends that it only deposited waste on the north side of the landfill, and it is therefore not responsible for the response costs associated with the waste on the south side of the landfill.

EPA presented a photograph of the Jacksonville Landfill dated July 1969 showing that there was waste disposal south of the pipeline right-of-way as of 1969.[63] Vincent Dodson testified that he disposed of wastes south of the pipeline.

Hercules cannot show that the trash, filter paper, and other materials disposed of at the Jacksonville landfill were not contaminated with hazardous substances, including dioxin, 2,4,5-T and 2,4-D. It also cannot demonstrate that it is not the source of the contamination at the Jacksonville City landfill. Thus, the Court finds that Hercules has not established a basis to divide the harm at the Jacksonville City landfill.

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[63] Ex. 8097, 2001 Tr. at 1610-12.

Constitutionality of CERCLA

Hercules contends that the retroactive application of CERCLA to impose liability of $82 million upon Hercules with respect to the drummed wastes and OU-1 violates the Fifth Amendment under *Eastern Enterprises v. Apfel,* 524 U.S. 498 (1998) because that liability is severe, unexpected, and grossly disproportionate to Hercules' conduct. Hercules' arguments rest on the assumption that it is not responsible for the disposal of Vertac's drums and OU-1, and that it has shown divisibility.[64]

The Eighth Circuit has previously held CERCLA to be constitutional. *See United States v. Northeastern Pharm. and Chem. Co.,* 810 F.2d 726 (8th Cir.1986). It reaffirmed this holding and refused to accord *Eastern Enterprises* precedential value. *United States v. Dico, Inc.,* 266 F.3d 864, 879-880 (8th Cir.2001)

Recently, the Second Circuit addressed the argument that the retroactive application of CERCLA to an aluminum manufacturer's waste disposal activities constituted an unconstitutional taking under the Fifth Amendment's Takings Clause and a violation of the Fourteenth Amendment's Due Process Clause. The court thoroughly discussed the issue, noting that the other courts that have considered the constitutionality of CERCLA in light of *Eastern Enterprises* have continued to hold that CERCLA is constitutional. *United States v. Alcan Aluminum Corp.,* 315 F.3d 179, 189-190 (2d Cir.2003)(listing cases).

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[64] Hercules arrives at a somewhat outrageous conclusion that the Eighth Circuit, in remanding the case, had "clearly signaled its belief that the evidence supports only Hercules' contentions regarding its lack of liability for the drums and OU-1. As a matter of deference to the factfinder, however, the Eighth Circuit remanded so that this Court could take the step of entering judgment in favor of Hercules." (Reply by Hercules in support of findings of fact and conclusions of law, docket entry 2488, p. 34 fn. 20). It is clear that the reversal and remand hardly amounts to a finding by the Eighth Circuit in favor of Hercules.

"[C]ourts considering the issue prior to the *Eastern Enterprises* decision consistently agreed that the retroactive liability scheme of CERCLA is constitutional. Like this Court, several other courts have been asked to reconsider this precedent in light of Eastern Enterprises. Those courts have uniformly held that CERCLA continues to pass constitutional muster." *Id.* at 189.

Hercules has not provided a basis for the Court to disregard the well-reasoned decisions of those courts that have considered the constitutionality of CERCLA post-*Eastern Enterprises.* The Court finds that the application of CERCLA to hold Hercules liable in this instance is not unconstitutional.

Uniroyal's Divisibility Defense

Uniroyal asks that the Court reconsider Uniroyal's divisibility defense. Uniroyal contends that if the Court accepts Hercules' divisibility argument but rejects Uniroyal's divisibility argument, liability for the divided portion of the harm will fall to Uniroyal alone.

Uniroyal did not raise the divisibility defense on appeal and the Court was not directed by the Eighth Circuit to consider it. The Court will not go outside the scope of the remand. Even if it did, the Court would find no basis to reconsider Uniroyal's divisibility of harm defense. As discussed above, the Court has rejected Hercules' divisibility argument with respect to those areas for which Uniroyal was held jointly and severally liable. The Court could not find, therefore, that Uniroyal has established a basis to divide the harm. It remains jointly and severally liable for all areas except the landfills.

CONCLUSION

The Court has considered Hercules' divisibility of harm defense according to the standards set forth in *Vertac XII.* The Court finds that Hercules has failed to establish a basis to

divide the harm with the exception of the Rogers Road landfill. The Court finds that Hercules is not responsible for the costs incurred in connection with the Rogers Road landfill.

The Court has already found that the costs incurred by EPA were reasonable and that it was entitled to recover those costs. The Court entered judgment against the parties in the amount of $102,878,641.35 plus any additional response costs incurred and to be incurred in this case. *Vertac IX,* at 787. The Court need not revisit its findings with regard to the reasonableness of the costs. Those findings remain valid. The judgment, however, must be reduced by the amount of costs incurred for the Rogers Road landfill.

The Court further finds that the previous ruling regarding allocation remains valid. Thus, the previous finding that Uniroyal is responsible for 2.6 percent of the costs for which it is jointly and severally liable is affirmed. *See United States v. Vertac Chem. Corp.,* 79 F.Supp.2d 1034, 1041 (E.D.Ark.1999).

The government is directed to submit a proposed judgment within fifteen days of this Memorandum Opinion and Order which sets forth the modified costs consistent with this Order.

GEORGE HOWARD, JR., District Judge.

APPENDIX C: ORDER OF THE U.S. COURT OF APPEALS FOR THE EIGHTH CIRCUIT DATED SEPTEMBER 19, 2006

UNITED STATES COURT OF APPEALS
FOR THE EIGHTH CIRCUIT

No. 05-3147/3153

United States of America,	*	
	*	
Appellee,	*	
	*	Order Denying Petition for
vs.	*	Rehearing and for Rehearing
	*	En Banc
Hercules, Inc.;	*	
Crompton Co.,	*	
et al.	*	
	*	
Appellants.	*	

The petitions for rehearing en banc are denied. The petitions for rehearing by the panel are also denied.

Chief Judge Loken did not participate in the consideration or decision of this matter.

(5128-010199)

September 19, 2006

Order Entered at the Direction of the Court:
Clerk, U.S. Court of Appeals, Eighth Circuit

APPENDIX D: STATUTORY PROVISIONS

42 U.S.C. § 9607(a) provides in relevant part:

Notwithstanding any other provision or rule of law, and subject only to the defenses set forth in subsection (b) of this section--

(1) the owner and operator of a vessel or a facility,

(2) any person who at the time of disposal of any hazardous substance owned or operated any facility at which such hazardous substances were disposed of,

(3) any person who by contract, agreement, or otherwise arranged for disposal or treatment, or arranged with a transporter for transport for disposal or treatment, of hazardous substances owned or possessed by such person, by any other party or entity, at any facility or incineration vessel owned or operated by another party or entity and containing such hazardous substances, and

(4) any person who accepts or accepted any hazardous substances for transport to disposal or treatment facilities, incineration vessels or sites selected by such person, from which there is a release, or a threatened release which causes the incurrence of response costs, of a hazardous substance, shall be liable for--

(A) all costs of removal or remedial action incurred by the United States Government or a State or an Indian tribe not inconsistent with the national contingency plan;

(B) any other necessary costs of response incurred by any other person consistent with the national contingency plan;

(C) damages for injury to, destruction of, or loss of natural resources, including the reasonable costs of assessing such injury, destruction, or loss resulting from such a release; and

(D) the costs of any health assessment or health effects study carried out under section 9604(i) of this title.

42 U.S.C. § 9613(j)(2) provides:

In considering objections raised in any judicial action under this chapter, the court shall uphold the President's decision in selecting the response action unless the objecting party can demonstrate, on the administrative record, that the decision was arbitrary and capricious or otherwise not in accordance with law.

5 U.S.C. § 553(b) provides:

General notice of proposed rule making shall be published in the Federal Register, unless persons subject thereto are named and either personally served or otherwise have actual notice thereof in accordance with law. The notice shall include--

(1) a statement of the time, place, and nature of public rule making proceedings;

(2) reference to the legal authority under which the rule is proposed; and

(3) either the terms or substance of the proposed rule or a description of the subjects and issues involved.

Except when notice or hearing is required by statute, this subsection does not apply--

(A) to interpretative rules, general statements of policy, or rules of agency organization, procedure, or practice; or

(B) when the agency for good cause finds (and incorporates the finding and a brief statement of reasons therefor in the rules issued) that notice and public procedure thereon are impracticable, unnecessary, or contrary to the public interest.

Supreme Court, U.S.
FILED
MAR 23 2007
OFFICE OF THE CLERK

(3) (3) (3)

Nos. 06-853, 06-865 and 06-1014

In the Supreme Court of the United States

CHEMTURA CANADA CO./CIE,
FKA CROMPTON CO./CIE,
FKA UNIROYAL CHEMICAL LIMITED, PETITIONER

v.

UNITED STATES OF AMERICA, ET AL.

HERCULES INCORPORATED, PETITIONER

v.

UNITED STATES OF AMERICA

CHEMTURA CANADA CO./CIE,
FKA CROMPTON CO./CIE,
FKA UNIROYAL CHEMICAL LIMITED, PETITIONER

v.

UNITED STATES OF AMERICA

ON PETITIONS AND CONDITIONAL CROSS-PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE EIGHTH CIRCUIT

BRIEF FOR THE UNITED STATES IN OPPOSITION

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QUESTIONS PRESENTED

Section 107(a)(1)-(4)(A) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. 9607(a)(1)-(4)(A), authorizes the United States to bring suit against various private parties, including "any person who by contract, agreement, or otherwise arranged for disposal * * * of hazardous substances owned or possessed by such person," to recover costs incurred in cleaning up contaminated property, and to proceed on a theory of joint and several liability. The petitions and conditional cross-petition present the following questions:

1. Whether the application of CERCLA to petitioners was unconstitutionally retroactive under the Fifth Amendment.

2. Whether the document setting forth the cancer potency factor that the Environmental Protection Agency used in selecting the appropriate remedial action at the contaminated site constituted a rule that should have been subject to notice and comment.

3. Whether petitioner Chemtura Canada Co./CIE was an "arranger" subject to CERCLA liability under Section 107(a)(3), 42 U.S.C. 9607(a)(3).

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In the Supreme Court of the United States

No. 06-853
CHEMTURA CANADA CO./CIE,
FKA CROMPTON CO./CIE,
FKA UNIROYAL CHEMICAL LIMITED, PETITIONER
v.
UNITED STATES OF AMERICA, ET AL.

No. 06-865
HERCULES INCORPORATED, PETITIONER
v.
UNITED STATES OF AMERICA

No. 06-1014
CHEMTURA CANADA CO./CIE,
FKA CROMPTON CO./CIE,
FKA UNIROYAL CHEMICAL LIMITED, PETITIONER
v.
UNITED STATES OF AMERICA

ON PETITIONS AND CONDITIONAL CROSS-PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE EIGHTH CIRCUIT

BRIEF FOR THE UNITED STATES IN OPPOSITION

OPINIONS BELOW

The opinion of the court of appeals (06-853 Pet. App. 1a-30a) is reported at 453 F.3d 1031. The opinion of the district court (06-853 Pet. App. 31a-80a) is reported at

364 F. Supp. 2d 941. An earlier opinion of the court of appeals (06-853 Pet. App. 81a-108a) is reported at 247 F.3d 706.

JURISDICTION

The judgment of the court of appeals was entered on July 13, 2006. A petition for rehearing was denied on September 19, 2006 (06-853 Pet. App. 199a). The petition for a writ of certiorari in No. 06-853 was filed on December 18, 2006. The petition in No. 06-865 was filed on December 14, 2006, and was placed on this Court's docket on December 21, 2006. The conditional cross-petition in No. 06-1014 was filed on January 22, 2007 (Monday). The jurisdiction of this Court is invoked under 28 U.S.C. 1254(1).

STATEMENT

1. Congress enacted the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. 9601 *et seq.*, in response to the serious environmental and health dangers posed by property contaminated by hazardous substances. *United States* v. *Bestfoods*, 524 U.S. 51, 55 (1998). The "two goals" of CERCLA, as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), Pub. L. No. 99-499, 100 Stat. 1613, are "to provide for clean-up if a hazardous substance is released into the environment or if such release is threatened" and "to hold responsible parties liable for the costs of these clean-ups." H.R. Rep. No. 253, 99th Cong., 1st Sess., Pt. 3, at 15 (1985).

Section 107(a) of CERCLA imposes liability for costs incurred in cleaning up contaminated property on four categories of "[c]overed persons"—typically known as potentially responsible parties (PRPs). 42 U.S.C.

9607(a). PRPs are defined as (1) owners and operators of facilities at which hazardous substances are located; (2) past owners and operators of such facilities at the time that disposal of hazardous substances occurred; (3) persons "who by contract, agreement, or otherwise arranged for disposal * * * of hazardous substances owned or possessed by such person[s]"; and (4) certain transporters of hazardous substances. See 42 U.S.C. 9607(a)(1)-(4); see also *Bestfoods*, 524 U.S. at 56 n.1 (noting that "[t]he remedy that Congress felt it needed in CERCLA is sweeping: *everyone* who is potentially responsible for hazardous-waste contamination may be forced to contribute to the costs of cleanup") (quoting *Pennsylvania* v. *Union Gas Co.*, 491 U.S. 1, 21 (1989) (plurality opinion)).

Under Section 107(a)(1)-(4)(A), persons that qualify as PRPs are liable for "all costs of removal or remedial action incurred by the United States Government or a State or an Indian tribe not inconsistent with the national contingency plan." 42 U.S.C. 9607(a)(1)-(4)(A).[1] Since the enactment of CERCLA, courts have consistently held that this language authorizes the enumerated governmental entities to bring suit against PRPs to recover their response costs, and to proceed on a theory of joint and several liability (except to the extent that PRPs can show that the alleged harm is divisible). See, *e.g.*, *New Castle County* v. *Halliburton NUS Corp.*, 111 F.3d 1116, 1121 (3d Cir. 1997). Another provision of CERCLA, Section 113(f)(1), provides that "[a]ny person may seek contribution from any other person who is liable or potentially liable under [Section 107(a)], during or

[1] The national contingency plan consists of regulations prescribing the procedure for conducting cleanups under CERCLA and other federal laws. See CERCLA § 105, 42 U.S.C. 9605; 40 C.F.R. Pt. 300.

following any civil action * * * under [Section 107(a)]." 42 U.S.C. 9613(f)(1).

2. This case concerns a massive cleanup operation at a herbicide and pesticide manufacturing plant in Jacksonville, Arkansas. Petitioner Hercules Incorporated (Hercules) purchased the plant in 1961 and operated it until 1971. During that time, Hercules manufactured various herbicides. In the process of manufacturing a herbicide known as trichlorophenoxyacetic acid (2,4,5-T), Hercules generated large amounts of 2,3,7,8-tetrachlorodibenzo-p-dioxin, a type of dioxin. 06-853 Pet. App. 3a-4a. "It is undisputed that dioxin is the most acutely toxic substance yet synthesized by man." *United States* v. *Vertac Chem. Corp.*, 489 F. Supp. 870, 876 (E.D. Ark. 1980).

During its operation and ownership of the plant, Hercules released dioxin into the environment in various ways. When Hercules purchased the plant, it buried thousands of drums containing pesticide and herbicide wastes. Hazardous substances from those drums, including dioxin, leaked into a nearby creek. Until 1964, Hercules discharged dioxin-contaminated wastewater into the same creek; Hercules then installed a holding basin to allow the contaminated wastewater to be pumped into the local sewer system, but the basin did nothing to remove the dioxin and frequently overflowed during heavy rainfalls. Hercules also extracted dioxin from its herbicides by using a solvent; that process produced a waste residue that Hercules placed in drums. Hercules left those drums sitting out, sometimes for months; during that time, waste containing dioxin often leaked from the drums. 06-853 Pet. App. 4a-5a, 36a-38a.

In 1971, Vertac Chemical Corporation (Vertac) leased the plant from Hercules; in 1976, Vertac pur-

chased it. Vertac continued to manufacture herbicides, including 2,4,5-T, and, in doing so, continued to generate dioxin. Like Hercules, Vertac stored drums containing dioxin-contaminated waste on the site. 06-853 Pet. App. 5a-6a, 39a.

Petitioner Chemtura Canada Company/CIE (Chemtura), then known as Uniroyal Chemical Limited, entered into an agreement with Vertac under which Vertac would formulate more than a million pounds of 2,4,5-T. In connection with that agreement, Chemtura supplied Vertac with 1,2,4,5-tetrachlorobenzene (TCB), a hazardous substance that was the key ingredient of 2,4,5-T. Chemtura had imported the TCB pursuant to temporary import bonds, in which it had declared that it was bringing the TCB into the country solely for processing and that it owned, and would continue to own, the TCB during the entire time it was in the country. Chemtura required Vertac to store the TCB separately and to provide insurance for it while it was stored at the site. In entering into the arrangement with Vertac, Chemtura understood, and the agreement specifically provided, that some of the TCB would be lost through waste and spillage and that the process for manufacturing 2,4,5-T from the TCB would generate dioxin that would require disposal. 06-853 Pet. App. 39a, 87a-88a, 169a-171a.

In 1979, Vertac stopped manufacturing 2,4,5-T. In 1980, the Environmental Protection Agency (EPA) issued a rule prohibiting Vertac from disposing of wastes contaminated with dioxin. 45 Fed. Reg. 32,676. Vertac continued to accumulate drums of waste from its production of herbicides. In 1987, Vertac abandoned the site; by that time, nearly 29,000 drums of waste were stored there. In conjunction with the Arkansas Department of

Pollution Control and Ecology, EPA undertook remediation efforts at the site (and at adjoining locations and two area landfills). 06-853 Pet. App. 6a-8a, 10a, 39a-43a, 46a.

3. As is relevant here, the United States filed suit against petitioners in the Eastern District of Arkansas, seeking to recover the costs of cleaning up the Jacksonville site (and the associated locations) under Section 107(a)(1)-(4)(A) of CERCLA. See 42 U.S.C. 9607(a)(1)-(4)(A).[2] The government alleged that Hercules was jointly and severally liable as an owner and operator of the Jacksonville facility at the time that disposal of dioxin occurred, see CERCLA § 107(a)(2), 42 U.S.C. 9607(a)(2), and as an "arranger" of the disposal of hazardous substances, see CERCLA § 107(a)(3), 42 U.S.C. 9607(a)(3). The government also alleged that Chemtura was jointly and severally liable as an "arranger." Petitioners brought cross-claims against each other for contribution under Section 113(f)(1). See 42 U.S.C. 9613(f)(1).

In 1993, the district court granted summary judgment to the government on its claim against Hercules, concluding that Hercules was jointly and severally liable both as an owner and operator under Section 107(a)(2) and as an "arranger" under Section 107(a)(3) and further concluding that Hercules had failed to show that the harm was divisible. 06-853 Pet. App. 9a, 90a. In 1997, after trial before an advisory jury, the district court determined that Chemtura was liable as an "ar-

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[2] The government also brought suit against various other parties, including Vertac. Vertac ultimately agreed to pay $10.7 million toward the cleanup of the site, and its shareholders agreed to pay an additional $3.15 million. *United States* v. *Vertac Chem. Corp.*, 756 F. Supp. 1215, 1217 (E.D. Ark. 1991), aff'd, 961 F.2d 796 (8th Cir. 1992).

ranger" under Section 107(a)(3). *Id.* at 154a-198a. The district court based that determination on its findings that (1) Chemtura owned the TCB it supplied to Vertac; (2) Chemtura retained an ownership interest in the TCB during its processing; (3) Chemtura owned the 2,4,5-T that was produced; (4) the generation of hazardous substances was "inherent" during the processing of the TCB; and (5) the processing by Vertac resulted in the release of hazardous substances. *Id.* at 177a.

The district court subsequently granted summary judgment to the government on the amount of costs it sought to recover from petitioners. 06-853 Pet. App. 109a-153a. As is relevant here, the district court rejected Hercules' claim that it should not have been liable for the cleanup costs associated with a nearby landfill site on the ground that the document that set forth the cancer potency factor used by EPA to calculate the risk from dioxin at the site constituted a rule that should have been subject to notice and comment. *Id.* at 129a-130a. The court reasoned that the document was "at most only a technical and advisory report," *id.* at 130a; that EPA's regional administrator "exercised discretion in deciding whether to apply the cancer potency factor to the cleanup of the site," *ibid.*; and that Hercules "had the opportunity to, and did, comment on EPA's application of the cancer potency factor with regard to cleanup levels at the site," *id.* at 131a.

The district court entered judgment in favor of the government against petitioners in the common amount of approximately $89 million (plus subsequent response costs and post-judgment interest). *United States* v. *Vertac Chem. Corp.*, 79 F. Supp. 2d 1034. 1035 (E.D. Ark. 1999). With regard to petitioners' contribution claims, the district court allocated 97.4% of the common

amount to Hercules and 2.6% to Chemtura, subject to offsets from any other PRPs. *Id.* at 1041.

4. On appeal, Chemtura contended, *inter alia*, that the district court erred by holding that it was liable as an "arranger" under Section 107(a)(3); Hercules contended, *inter alia*, that the district court erred by holding that it had failed to show that the harm was divisible. The court of appeals affirmed the judgment of liability against Chemtura, but reversed and remanded the judgment of liability against Hercules on the issue of divisibility. 06-853 Pet. App. 81a-108a.

With regard to Chemtura's argument, the court of appeals explained that, "[i]n deciding questions of arranger liability, we do not rely on bright-line rules but look to the totality of the circumstances to determine whether the facts of a given case fit within CERCLA's overwhelmingly remedial scheme." 06-853 Pet. App. 105a-106a (internal quotation marks and citation omitted). The court reasoned that this case was "nearly identical" to *United States* v. *Aceto Agricultural Chemicals Corp.*, 872 F.2d 1373 (8th Cir. 1989), in which it had declined to dismiss a similar CERCLA complaint. 06-853 Pet. App. 103a. The court of appeals observed that "[c]ontrol * * * is not a necessary factor in every case of arranger liability," *id.* at 104a; that the district court did not clearly err by finding that Chemtura owned the TCB throughout its processing, *id.* at 105a; and that, even if Chemtura had technically sold the TCB to Vertac, it was appropriate to "look beyond defendants' characterizations to determine whether a transaction in fact involves an arrangement for the disposal of a hazardous substance," *id.* at 106a (citation omitted).

With regard to Hercules's argument, the court of appeals concluded that the district court had applied the

incorrect legal standard in determining that Hercules had failed to show that the harm was divisible. 06-853 Pet. App. 100a-102a.

5. Chemtura filed a petition for a writ of certiorari, renewing its claim that it should not have been held liable as an "arranger" under Section 107(a)(3). See Pet. at 5-12, *Crompton Co./CIE* v. *United States*, No. 01-387. This Court denied review. 534 U.S. 1065 (2001).

6. On remand, after a lengthy evidentiary hearing, the district court again determined that Hercules had failed to show that the harm was divisible, except with regard to the harm caused at another nearby landfill site. 06-853 Pet. App. 31a-80a. As is relevant here, the district court rejected Hercules' contention that the application of CERCLA would be unconstitutionally retroactive under the Fifth Amendment because Hercules' liability would be "severe, unexpected, and grossly disproportionate to Hercules' conduct." *Id.* at 77a. The district court reasoned that "[t]he Eighth Circuit has previously held CERCLA to be constitutional," *id.* at 78a, and that other courts had consistently reached the same conclusion, both before and after this Court's decision in *Eastern Enterprises* v. *Apfel*, 524 U.S. 498 (1998). 06-853 Pet. App. 78a. Accordingly, the district court concluded that "the application of CERCLA to hold Hercules liable in this instance is not unconstitutional." *Ibid.* After subtracting the costs associated with the excluded landfill site, the court subsequently reentered final judgment in favor of the government in the common amount of approximately $110 million (plus subsequent response costs and post-judgment interest). *Id.* at 10a.

7. The court of appeals affirmed. 06-853 Pet. App. 1a-30a.

The court of appeals first rejected various claims by Hercules, including challenges to the district court's determination that Hercules had mostly failed to show that the harm was divisible. 06-853 Pet. App. 11a-28a. As is relevant here, the court rejected Hercules' claim that it should not have been liable for the cleanup costs associated with the nearby landfill site on the ground that the document that set forth the cancer potency factor used by EPA to calculate the risk from pollution at the site constituted a rule that should have been subject to notice and comment. *Id.* at 25a-27a. The court of appeals agreed with the district court that the document was "at most a technical and advisory report * * * [and] did not obligate the agency or public in determining acceptable risks associated with dioxin," *id.* at 26a (citation omitted), and that "EPA considered Hercules' comments on the EPA's application of the cancer potency factor with regard to the cleanup levels at the site and responded to the comments in the final [records of decision]," *ibid.*

The court of appeals also rejected Chemtura's claim that it should not have been held liable as an "arranger" under Section 107(a)(3). 06-853 Pet. App. 29a. The court reasoned that it had addressed that issue in its previous opinion and that, because Chemtura had "pointed to no new controlling authority," its previous opinion was binding as the law of the case. *Ibid.*

Finally, the court of appeals rejected petitioners' claims that the application of CERCLA was unconstitutionally retroactive under the Fifth Amendment. 06-853 Pet. App. 29a-30a. The court reasoned that it had "previously resolved this exact issue" in *United States* v. *Dico, Inc.*, 266 F.3d 864 (8th Cir. 2001), cert. denied, 535 U.S. 1095 (2002), in which it had held, in the wake of this

Court's decision in *Eastern Enterprises*, that the application of CERCLA was not unconstitutionally retroactive. 06-853 Pet. App. 29a.

ARGUMENT

Petitioners contend (06-853 Pet. 15-19; 06-865 Pet. 13-24; 06-1014 Pet. 16-20) that the court of appeals erred by holding that the application of CERCLA was not unconstitutionally retroactive under the Fifth Amendment. Petitioners further contend (06-865 Pet. 24-30; 06-1014 Pet. 20-23) that the court of appeals erred by holding that the document that set forth the cancer potency factor used by the Environmental Protection Agency (EPA) in selecting the appropriate remedial action for the landfill site did not constitute a rule that should have been subject to notice and comment. In its petition (and in its conditional cross-petition to Hercules' petition), Chemtura also contends (06-853 Pet. 7-15; 06-1014 Pet. 8-16) that the court of appeals erred by holding that it was subject to CERCLA liability as an "arranger" under Section 107(a)(3). None of those contentions warrants further review.

1. Petitioners claim (06-853 Pet. 15-19; 06-865 Pet. 13-24; 06-1014 Pet. 16-20) that the court of appeals erred by holding that the application of CERCLA was not unconstitutionally retroactive under the Fifth Amendment. That claim lacks merit.

a. Petitioners do not assert that the court of appeals' decision conflicts with any decision of another court of appeals concerning the application of CERCLA. Nor could they, because, as the courts below noted (06-853 Pet. App. 29a, 106a-108a), the courts of appeals have consistently rejected retroactivity challenges to CERCLA. See *United States* v. *Alcan Aluminum*

Corp., 315 F.3d 179, 189-190 (2d Cir. 2003), cert. denied, 540 U.S. 1103 (2004); *United States* v. *Dico, Inc.*, 266 F.3d 864, 880 (8th Cir. 2001), cert. denied, 535 U.S. 1095 (2002); *Franklin County Convention Facilities Auth.* v. *American Premier Underwriters, Inc.*, 240 F.3d 534, 550-552 (6th Cir. 2001); *United States* v. *Olin Corp.*, 107 F.3d 1506, 1511-1515 (11th Cir. 1997); *O'Neil* v. *Picillo*, 883 F.2d 176, 183 & n.12 (1st Cir. 1989), cert. denied, 493 U.S. 1071 (1990); *United States* v. *Monsanto Co.*, 858 F.2d 160, 173 (4th Cir. 1988), cert. denied, 490 U.S. 1106 (1989). Although petitioners assert (06-853 Pet. 19; 06-865 Pet. 18-20) that they were challenging the constitutionality of CERCLA only on an as-applied basis, they offer no explanation for how their claims differ from the claims that were considered, and rejected, in those cases.

b. Petitioners' primary contention is that the court of appeals' decision conflicts with this Court's decision in *Eastern Enterprises* v. *Apfel*, 524 U.S. 498 (1998). That contention is unfounded.

In *Eastern Enterprises*, this Court considered a challenge to the Coal Industry Retiree Health Benefit Act of 1992 (the Coal Act), 26 U.S.C. 9701-9722. The Coal Act established a multi-employer lifetime health-benefit plan for coal miners, financed by annual premiums assessed against coal operators that had previously signed national wage agreements requiring contributions to benefit plans. *Eastern Enterprises*, 524 U.S. at 514-515 (plurality opinion). The plaintiff had operated a coal mine and signed national wage agreements, but ceased coal mining operations in 1966, before national wage agreements establishing lifetime health benefits had been signed. *Id.* at 515-516. Under the Coal Act, the plaintiff was obligated to pay premiums to cover the

health benefits of more than 1000 retired miners or their dependents who had worked for the company before 1966. *Id.* at 517. The plaintiff contended that the Coal Act violated substantive due process as applied to it, and effected an unconstitutional taking of its property without just compensation, by retroactively creating an obligation to finance the benefits of miners who, when employed by the plaintiff, had no expectation that they would receive lifetime health-care benefits at the plaintiff's expense. *Id.* at 517, 531.

The Court held that the application of the Coal Act to the plaintiff violated due process. A plurality of four Justices concluded that the application of the Coal Act effected an unconstitutional taking without just compensation. See *Eastern Enterprises*, 524 U.S. at 534-537. Applying a three-factor test drawn from the Court's regulatory-taking cases, the plurality concluded that, as applied to the plaintiff, the Coal Act had a substantial economic impact, interfered with reasonable investment-backed expectations, and constituted an unusual government action. *Id.* at 529-537. The plurality did not address the plaintiff's claim that the Coal Act violated substantive due process. *Id.* at 537-538. Justice Kennedy concurred in the judgment and dissented in part. He disagreed with the plurality's conclusion that the Coal Act should be analyzed as a taking, *id.* at 539-547, but concluded that the application of the Coal Act to the plaintiff violated substantive due process because the plaintiff "was not responsible for [the coal miners'] expectation of lifetime health benefits," which "was created by promises and agreements made long after [the plaintiff] left the coal business," *id.* at 550. Justice Breyer, joined by three other Justices, dissented. He also disagreed with the plurality's conclusion that the

Coal Act should be analyzed as a taking, *id.* at 554-559, but concluded that the application of the Coal Act to the plaintiff did not violate substantive due process because it was "not fundamentally unfair for Congress to impose upon [the plaintiff] liability for the future health care costs of miners whom it long ago employed," *id.* at 566.

Hercules contends (06-865 Pet. 14-18) that the court of appeals was *required* to analyze petitioners' claim under the three-factor test for analyzing regulatory taking claims applied by the plurality in *Eastern Enterprises*—and that, if it had, it would have concluded that the application of CERCLA to petitioners was unconstitutional. Far from commanding a majority of the Court in *Eastern Enterprises*, however, that mode of analysis was expressly rejected by five Justices. See 524 U.S. at 539-547 (Kennedy, J., concurring in the judgment and dissenting in part); *id.* at 554-559 (Breyer, J., joined by Stevens, Souter and Ginsburg, JJ., dissenting). Instead, to the extent that a common principle emerges from the opinions supporting the judgment in *Eastern Enterprises*, it is that the application of the Coal Act to the plaintiff was constitutionally problematic because the plaintiff had left the coal industry before any collective bargaining agreement gave miners an expectation of lifetime health-care benefits. See *id.* at 530-531, 532, 535-536 (plurality opinion); *id.* at 549-550 (Kennedy, J., concurring in the judgment and dissenting in part).

When judged against that principle, the application of CERCLA to potentially responsible parties such as petitioners is fundamentally distinguishable from the application of the Coal Act in *Eastern Enterprises*, because there is a much closer nexus between the conduct of a potentially responsible party and the costs that are being imposed on it (which, in an action under Section

107(a)(1)-(4)(A), are costs incurred by the government in remediating harms from contamination for which the party is determined to be responsible). As one court of appeals has explained, "the background and purpose of the [Coal Act] differs greatly from that of CERCLA," because "Congress intended CERCLA to apply retroactively and acted purposefully to allocate the cost of hazardous waste cleanup sites to those who were responsible for creating the sites." *Dico*, 266 F.3d at 880 (internal quotation marks and citation omitted). The mere fact that a potentially responsible party may be held jointly and severally liable does not alter the analysis, especially in light of the fact that CERCLA provides mechanisms for dividing and allocating costs with other available potentially responsible parties—mechanisms that petitioners invoked in this case. See, *e.g.*, CERCLA § 113(f), 42 U.S.C. 9613(f).[3] Accordingly, even after this Court's decision in *Eastern Enterprises*, the courts of appeals have consistently concluded that the application of CERCLA to potentially responsible parties is not unconstitutionally retroactive. See *Alcan Aluminum Corp.*, 315 F.3d at 189-190; *Dico*, 266 F.3d at 880; *Franklin County*, 240 F.3d at 550-552.

Hercules contends (06-865 Pet. 21-23) that this Court should grant review because there is broader doctrinal uncertainty about the holding of *Eastern Enterprises*. To be sure, as Hercules notes (Pet. 21 & n.11), some

[3] Hercules repeatedly contends that the liability imposed on it was disproportionate because it was not responsible for Vertac's subsequent conduct at the Jacksonville site. See, *e.g.*, 06-865 Pet. 8-10, 16, 19 n.10. Both the district court and the court of appeals, however, rejected almost all of Hercules' claim that the harm was divisible (and that Hercules therefore should not be held liable for some portion of the costs incurred by EPA in cleaning up the site). See 06-853 Pet. App. 11a-28a, 46a-79a.

courts of appeals have concluded, after applying the analysis of *Marks* v. *United States*, 430 U.S. 188 (1977), that "no single rationale was agreed upon by the Court" in *Eastern Enterprises*. *Franklin County*, 240 F.3d at 552; see, *e.g.*, *Alcan Aluminum*, 315 F.3d at 189-190; *Anker Energy Corp.* v. *Consolidated Coal Co.*, 177 F.3d 161, 169-174 (3d Cir.), cert. denied, 528 U.S. 1003 (1999); *Association of Bituminous Contractors, Inc.* v. *Apfel*, 156 F.3d 1246, 1253-1258 (D.C. Cir. 1998). This case, however, would constitute a poor vehicle for resolving any such doctrinal uncertainty because, under any conceivable rationale on which a majority of the Court did agree, the application of CERCLA to potentially responsible parties such as petitioners would raise no constitutional difficulties. In any event, because there is no circuit conflict on the constitutionality of the retroactive application of CERCLA, further review on that question is unwarranted.

2. Petitioners further contend (06-865 Pet. 24-30; 06-1014 Pet. 20-23) that the court of appeals erred by holding that the document that set forth the cancer potency factor for dioxin used by the Environmental Protection Agency (EPA) in selecting the appropriate remedial action for the landfill site did not constitute a rule that should have been subject to notice and comment. That contention also lacks merit.

In general, cancer potency factors (also known as slope factors) constitute "[e]stimate[s] of the probability of response (for example, cancer) per unit intake of a substance over a lifetime." 40 C.F.R. Pt. 300, App. A, § 1.1. On a site-by-site basis, EPA uses cancer potency factors in establishing cleanup levels consistent with the national contingency plan (NCP). See 40 C.F.R. 300.430(e)(2)(i)(A)(2).

In holding that the document that set forth the cancer potency factor used by EPA in selecting the appropriate remedial action for the landfill site did not constitute a rule that should have been subject to notice and comment, the court of appeals applied the frequently cited two-part test articulated by the District of Columbia Circuit for distinguishing between legislative rules and policy statements, under which a court is required to consider (1) whether the statement at issue has binding effect and (2) whether it genuinely leaves the agency free to exercise discretion. 06-853 Pet. App. 25a-26a (citing *McLouth Steel Prods. Corp.* v. *Thomas*, 838 F.2d 1317 (D.C. Cir. 1988)). Applying that standard, the court reasoned the document was "at most a technical and advisory report * * * [and] did not obligate the agency or public in determining acceptable risks associated with dioxin," *id.* at 26a (citation omitted), and that "EPA considered Hercules' comments on the EPA's application of the cancer potency factor with regard to the cleanup levels at the site and responded to the comments in the final [records of decision]," *ibid.*

Petitioners do not contend that the court of appeals' decision to treat the document setting forth the cancer potency factor as a policy statement specifically conflicts with the decision of any other court of appeals concerning that document, nor do they contend that the court of appeals' test for distinguishing between legislative rules and policy statements more generally conflicts with the test used by any other court of appeals. Instead, petitioners seemingly contend only that the court of appeals *misapplied* that test because, "while parties were free to propose alternative potency factors, EPA announced that it would not consider them." 06-865 Pet. 24. Petitioners, however, fail to cite anything in the document

that set forth the cancer potency factor—*i.e.*, the guidance document issued by EPA in 1985—or in any other document that suggests that EPA intended that factor to be binding in all cases. The court of appeals, moreover, determined that EPA "considered Hercules's comments on the EPA's application of the cancer potency factor with regard to the cleanup levels at the site and responded to the comments in the final [records of decision]." 06-853 Pet. App. 26a. The mere fact that EPA has consistently used the same cancer potency factor (as one of many factors) "at every site at which dioxin affected remedial choices" (06-865 Pet. 24) in no way compels the conclusion that EPA has treated that cancer potency factor as binding; it could just as easily support the conclusion that the cancer potency factor is well-supported by scientific evidence (as reflected in the fact that there has been no prior litigation concerning EPA's choice of cancer potency factor). To the extent that petitioners claim that the court of appeals misapplied the test for distinguishing between legislative rules and policy statements, therefore, that claim lacks merit and in any event would not warrant further review.

3. Finally, Chemtura claims (06-853 Pet. 7-15; 06-1014 Pet. 8-16) that the court of appeals erred by holding that it was subject to CERCLA liability as an "arranger" under Section 107(a)(3). This Court denied review of that claim in an earlier petition, see Pet. at 5-12, *Crompton Co./CIE* v. *United States*, cert. denied, 534 U.S. 1065 (2001) (No. 01-387), and the same result is warranted here.

Chemtura asserts (06-853 Pet. 15) that there is a circuit conflict on the correct standard for liability as an "arranger." That assertion is incorrect. Instead, the courts of appeals have followed an intensely factual,

case-by-case approach in determining the application of "arranger" liability. They have observed that CERCLA does not define the phrase "otherwise arranged for disposal," 42 U.S.C. 9607(a)(3), and they have expressly rejected reliance on any "*per se* rule" in applying that term to the wide variety of factual situations in which it may come into play. *Florida Power & Light Co.* v. *Allis Chalmers Corp.*, 893 F.2d 1313, 1317-1318 (11th Cir. 1990).

In particular, the courts of appeals—like the court of appeals in this case, see 06-853 Pet. App. 104a—have refused to adopt a per se rule requiring a showing that the defendant controlled the disposal or treatment of hazardous substances in order to establish "arranger" liability. See, *e.g.*, *United States* v. *Cello-Foil Prods., Inc.*, 100 F.3d 1227, 1232 (6th Cir. 1996); *United States* v. *TIC Inv. Corp.*, 68 F.3d 1082, 1087-1088 (8th Cir. 1995), cert. denied, 519 U.S. 808 (1996); *Catellus Dev. Corp.* v. *United States*, 34 F.3d 748, 752 (9th Cir. 1994). Instead, they have made clear that liability as an "arranger" hinges on a variety of factors peculiar to the particular transactions at issue. See, *e.g.*, *Morton Int'l, Inc.* v. *A.E. Staley Mfg. Co.*, 343 F.3d 669, 677-678 (3d Cir. 2003) (holding that "arranger" liability could be established by proof of "(1) ownership or possession; and (2) knowledge; *or* (3) control") (emphasis added).

To be sure, control over (or the authority to control) the waste disposal process may take on significance in situations in which the potentially responsible parties are not involved in a close business relationship that contemplates the use and disposal of hazardous substances. For example, in *General Electric Co.* v. *AAMCO Transmissions, Inc.*, 962 F.2d 281 (2d Cir. 1992), the plaintiff sought to hold several oil companies

liable as entities that arranged for the disposal of waste motor oil that was stored by dealers at service stations that the dealers leased from the oil companies. The court rejected the argument that the oil companies were liable as "arrangers" simply because they had the authority to control the manner by which their dealers disposed of waste oil, reasoning that "there must be some nexus between the potentially responsible party and the disposal of the hazardous substance." *Id.* at 286. In *General Electric*, there was no relationship at all between the defendants and the entity that disposed of the hazardous substances. Under those circumstances, the court concluded, the authority to control disposal was insufficient to provide the necessary connection for "arranger" liability. *Id.* at 287-288. Critically, the court distinguished *United States* v. *Aceto Agricultural Chemicals Corp.*, 872 F.2d 1373 (8th Cir. 1989), on the ground that "the oil companies did not own the hazardous substance, nor did they control the process by which waste motor oil was generated." *General Electric*, 962 F.2d at 287. The court therefore left open the possibility that, where, as here, the defendant retained ownership of chemicals during processing and knew that the processing of those chemicals would generate hazardous waste, the defendant could be liable as an "arranger" under Section 104(a)(3).

Similarly, in *South Florida Water Management District* v. *Montalvo*, 84 F.3d 402 (11th Cir. 1996), pesticide sprayers who had spilled hazardous chemicals on and around their airstrip filed a third-party complaint against the landowners who had contracted for their services. The court determined that the relationship between the sprayers and the landowners did not form a basis for "arranger" liability because "the Sprayers

have simply not alleged the Landowners had sufficient knowledge of *or* control over the Sprayers' disposal practices to be held liable." *Id.* at 409 (emphasis added). The court reaffirmed that courts must "reject[] any attempt to substitute a *per se* rule for the phrase 'arranged for,'" and should instead "focus on all of the facts in a particular case." *Id.* at 407. And like the Second Circuit in *General Electric*, the court determined that the instant case was distinguishable from *Aceto* because, "[i]n *Aceto*, the mixing and packaging of pesticides 'inherently' involved the creation of hazardous wastes such that the manufacturers should have expected the formulator would have to dispose of these wastes as part of the service they were purchasing." *Id.* at 408.

Here, the court of appeals correctly concluded that this case was analogous to *Aceto*. See 06-853 Pet. App. 103a. Like the defendants in *Aceto*, and unlike the defendants in *General Electric* or *South Florida*, Chemtura owned the pertinent hazardous materials throughout the manufacturing process and arranged for those materials to be processed in a manner that the Chemtura knew would generate wastes requiring disposal. *Id.* at 177a. Chemtura knew, moreover, that some of the hazardous materials it owned would be lost through waste and spillage. *Id.* at 170a. Chemtura thus knowingly participated in the fundamental chemical processing decisions that directly led to the improper disposal of hazardous waste. Where waste disposal is an inherent part of the process, as here and as in *Aceto*, the party who has arranged for the processing may be properly found to have arranged for the accompanying disposal of the resulting hazardous wastes. Chemtura fails to identify any conflict among the courts of appeals that warrants this Court's review.

CONCLUSION

The petitions and conditional cross-petition for writs of certiorari should be denied.

Respectfully submitted.

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NO. 06-865

IN THE

Supreme Court of the United States

HERCULES INCORPORATED,

Petitioner,

v.

UNITED STATES OF AMERICA,

Respondent.

ON PETITION FOR A WRIT OF CERTIORARI
TO THE UNITED STATES COURT OF APPEALS
FOR THE EIGHTH CIRCUIT

REPLY TO BRIEF IN OPPOSITION

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REPLY TO BRIEF IN OPPOSITION

The Eighth Circuit's decision warrants plenary review for two reasons. First, it imposed over $100 million in unexpected and unforeseeable retroactive liability on Hercules without even consulting the principles articulated by this Court, and adopted by all nine Justices, in *Eastern Enterprises v. Apfel*, 524 U.S. 498 (1998). Second, the Eighth Circuit held that the Administrative Procedure Act ("APA") did not require EPA to submit its dioxin potency factor to public comment and rulemaking, in clear conflict with decisions of the D.C. Circuit. The Government's cursory Brief in Opposition ("BIO") contends that "[n]one of these contentions warrants further review." BIO 11. But the questions presented are of national significance, as underscored by the amici curiae briefs in support of certiorari:

- A group of more than 30 esteemed scientists, representing the world's leaders in the field of cancer risk assessment (including members of EPA's own Science Advisory Board), have shown that EPA's failure to subject its dioxin potency factor to public notice and comment rulemaking has allowed it to ignore an overwhelming consensus against its scientific assumptions. *See* Brief of John Doull, et al., in No. 06-865.

- The American Chemistry Council has also filed an amicus brief in No. 06-865, demonstrating the need for rulemaking, followed by judicial review, of EPA's dioxin potency factor, which effectively dictates the remedial actions required at chemical disposal sites around the country and which has resulted in expenditures of over $100 billion.

- The Pacific Legal Foundation has filed a brief in Nos. 06-853 and 06-1014 urging this Court to grant review on the retroactivity question raised by the Eighth Circuit's defiance of *Eastern Enterprises*. These arguments also underscore the need for certiorari in No. 06-865.

1. This case presents the question whether the lower courts will adhere to the constitutional retroactivity doctrine of *Eastern Enterprises*, or instead whether that decision is essentially a dead letter. The Eighth Circuit refused to consider any version of the *Eastern Enterprises* test. It summarily upheld the retroactive imposition of CERCLA liability in this case solely on the ground that it had previously affirmed the denial of a last-minute motion to add a constitutional challenge to the retroactive use of CERCLA as an affirmative defense in a completely different case, *United States v. Dico*, 266 F.3d 864 (CA8 2001). Pet. App. 24a.

a. The Government defends the Eighth Circuit on the ground that the plurality's "mode of analysis was expressly rejected by five Justices." BIO 14. That is untrue. Justice Kennedy made clear that he was "in full accord with many of the plurality's conclusions." 524 U.S. at 539 (opinion of Kennedy, J.). He stated that "[t]he plurality opinion demonstrates in convincing fashion that the remedy created by the Coal Act bears no legitimate relation to the interest which the Government asserts in support of the statute." *Id.* at 549. He simply framed the analysis in terms of due process rather than takings. That is why this Court has continued to cite *Eastern Enterprises* for its precedential force. *E.g.*, *Tahoe-Sierra Preservation Council, Inc. v. Tahoe Regional Planning Agency*, 535 U.S. 302, 324 (2002); *Kelo v. City of New London,* 545 U.S. 469, 493 (2005) (Kennedy, J., concurring) (citing his separate opinion in *Eastern Enterprises*); *Lingle v. Chevron U.S.A. Inc.*, 544 U.S. 528, 548 (2005) (Kennedy, J., concurring) (same).

The Government's reasoning would produce absurd results. Under its view, because the Eighth Circuit in *Dico* summarily rejected a facial challenge to CERCLA retroactivity, there can be no constitutional limit to the liability of potentially responsible parties like Hercules, regardless of the circumstances under which EPA imposes

such liability. Yet all nine Justices in *Eastern Enterprises* recognized that a reviewing court must engage in a fact-intensive inquiry to consider the particular circumstances of individual statutory applications in determining whether the retroactive imposition of liability violates the Fifth Amendment. *See* 524 U.S. at 523, 528-29 (plurality); *id.* at 549-50 (opinion of Kennedy, J.); *id.* at 559, 566-68 (Breyer, J., dissenting). Because such a determination "is essentially ad hoc and fact intensive," 524 U.S. at 523 (plurality opinion), a prior judgment upholding CERCLA retroactivity on a facial basis cannot bar an as-applied challenge of the kind mounted by Hercules here. *Cf. Wisconsin Right to Life, Inc. v. FEC*, 126 S.Ct. 1016, 1018 (2006) (per curiam) (judgment that campaign finance statute was facially constitutional does not bar as-applied claim).

b. Much of the Government's analysis supports Hercules. For example, the Government acknowledges that the liability in *Eastern Enterprises* "was constitutionally problematic because the plaintiff had left the coal industry before any collective bargaining agreement gave miners an expectation of lifetime health-care benefits." BIO 14. So, too, Hercules left the site long before Vertac disposed of the materials in question, long before the enactment of CERCLA, and before even the 1978 Dow Chemical study (the first to link dioxin to any form of cancer, and only to liver cancer in female lab rats, at that). The Eighth Circuit never considered these factors and never applied any version of the *Eastern Enterprises* test.

The Government admits that even the dissenters in *Eastern Enterprises* opined that retroactive liability would violate due process if it was "fundamentally unfair." BIO 14 (internal quotation marks omitted). Yet the Eighth Circuit never inquired as to whether the imposition of retroactive liability on Hercules was fundamentally unfair.

c. The Government contends that "there is a much closer nexus between the conduct of a potentially responsible party

and the costs being imposed on it" than there was in the Coal Act context. BIO 14. Again, the Eighth Circuit never applied the *Eastern Enterprises* factors. It simply adopted the District Court's linkage of Hercules to the costs at issue, without any evaluation of whether that connection was too tenuous to support the astronomical liability in this case. By contrast, all nine Justices in *Eastern Enterprises* agreed that, even if there is a causal link between a party's conduct and the imposition of liability, the link does not pass constitutional muster if it is too "tenuous" under the constitutional test. 524 U.S. at 531 (plurality opinion); *see also id.* at 549-50 (opinion of Kennedy, J.); *id.* at 558-59, 566-68 (Breyer, J., dissenting).

Moreover, the Government's purported "closer nexus" is a fiction. It is undisputed that the disposal of the materials in question occurred *years after* Hercules had ceased production and sold the plant, and *years after* Hercules exercised control at the site. The harm was caused by a completely different company (Vertac), at a time when that company was supervised by a federal court and state and federal environmental agencies. Pet. App. 4a-6a. Nor does the Government deny that the liability is utterly disproportionate to Hercules' economic experience. Hercules lost over $3 million on its decade of operations (JA20666-68) and has already spent $40 million on cleanup separate and apart from the amounts sought by EPA.[1] Even under the facts as found by the courts below, the constitutional violation is plainer here than in *Eastern Enterprises*.

The fact that "CERCLA provides mechanisms for dividing and allocating costs with other potentially responsible parties," BIO 15, does not render the *Eastern*

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[1] The Government misleadingly refers to waste drums buried (lawfully) by Hercules during its operation of the site. BIO 4. It is undisputed that Hercules remedied (under RCRA) those wastes and has committed to operate a groundwater treatment facility until at least 2015. This case involves EPA costs regarding Vertac drums, not Hercules drums.

Enterprises factors inapplicable. Unconstitutionally harsh results are possible despite the statutory provisions for contribution and allocation. In this case, for example, EPA has never collected a penny from its judgments against Vertac. Contra BIO 6 n.2. The District Court allocated 97.4 percent of the liability to Hercules and 2.6 percent to Chemtura. Pet. App. 8a, 65a. Nor does the divisibility defense (BIO 15 n.3) eliminate the need for constitutional protections. The Eighth Circuit itself warned that "proving divisibility is a 'very difficult proposition,'" Pet. App. 10a, and saddled Hercules with over $100 million in retroactive liability on the basis of a tenuous theory of cross-contamination – all without applying the constitutional safeguards of *Eastern Enterprises*.

d. This case also provides the opportunity to resolve "the broader doctrinal uncertainty about the holding of *Eastern Enterprises*." BIO 15. As the Government notes (BIO 11-12, 15), the Second and Sixth Circuits have rejected constitutional challenges to the retroactive application of CERCLA by denying any precedential effect to *Eastern Enterprises*, on the misguided theory that there was no common ground between the plurality and Justice Kennedy's separate opinion. *See United States v. Alcan Aluminum Corp.*, 315 F.3d 179, 189 (CA2 2003), *cert. denied*, 540 U.S. 1103 (2004) ("no 'common denominator'"); *Franklin County Convention Facilities Auth. v. American Premier Underwriters, Inc.*, 240 F.3d 534, 552 (CA6 2001) ("*Eastern Enterprises* has no precedential effect").

By contrast, other courts, including the First and Fifth Circuits, have relied on *Eastern Enterprises* as precedent outside the Coal Act context. *See Asociación De Subscripción Conjunta Del Seguro De Responsabilidad Obligatorio v. Flores Galarza*, __ F.3d __, 2007 WL 613719, *10 (CA1 Mar. 1, 2007) (following *Eastern Enterprises* and explaining: "[f]ive members of the Court went on to conclude that the Coal Act's application to Eastern was

unconstitutional, but Justice Kennedy relied on due process, rather than takings, principles"); *U.S. Fidelity & Guar. Co. v. McKeithen*, 226 F.3d 412, 416-20 (CA5 2000) (state workers compensation act); *MHC Financial Ltd. Partnership v. City of San Rafael*, 2006 WL 3507937, *12 (N.D. Cal. Dec. 5, 2006) (relying on *Eastern Enterprises*, in part, for refusal to dismiss takings claim).

The Eighth Circuit has created another way to render *Eastern Enterprises* a dead letter. Ironically, pre-*Eastern Enterprises* cases, while upholding the retroactive application of CERCLA in particular cases, had engaged in a robust constitutional analysis. *E.g.*, *United States v. Monsanto Co.*, 858 F.2d 160, 173 (CA4 1988), *cert. denied*, 490 U.S. 1106 (1989). This is now unnecessary in the Eighth Circuit.

This case is an excellent vehicle for considering the precedential effect of *Eastern Enterprises*, as discussed in the Pacific Legal Foundation amicus brief. This case would allow this Court to address the status of *Eastern Enterprises* under the rule of *Marks v. United States*, 430 U.S. 188, 193 (1977), as well as the Eighth Circuit's ruling that a prior judgment addressing the facial retroactivity of a statute bars a subsequent as-applied claim. The issue has percolated in the circuits for a substantial period of time, and there is no indication that the lower courts will resolve the division by themselves.

2. This case also presents the question of whether EPA's dioxin potency factor is contrary to the APA because it is a legislative rule that has never been subjected to notice and comment rulemaking or judicial review. The Government acknowledges that the dioxin potency factor has substantial legal consequences because "EPA uses cancer potency factors in establishing cleanup levels consistent with the national contingency plan," BIO 16, so that the dioxin potency factor was used to "select[] the appropriate remedial action for the landfill site" in this case. *Id.* The Government does not deny that the dioxin potency factor has been responsible for

approximately $100 billion in litigation and compliance costs. This case is the most important risk assessment matter to come before this Court since *Indus. Union Dep't v. Am. Petroleum Inst.*, 448 U.S. 607 (1980) (rejecting OSHA benzene standard).

a. The Government insists rulemaking was not necessary because there is no evidence "that EPA intended [its dioxin potency] factor to be binding in all cases." BIO 18. Yet the Government admits that EPA has used the same dioxin potency factor for over 25 years, *without exception*. BIO 18. EPA has never been able to identify a single dioxin site where it departed from the factor. EPA refers to the dioxin potency factor as its "[s]tandard" factor. JA22915. The agency stated: "if EPA had not applied the cancer potency factor uniformly and consistently across the country, . . . the agency could be considered to be acting arbitrarily and capriciously." JA21228. EPA made no attempt in the administrative records of this case to justify its dioxin potency factor; it merely cited to its official policy.[2] When Hercules proposed a different potency factor, EPA dismissed it on the ground that it was "not in accordance with EPA policy." JA16528, 16902-03, 17041. There is no evidence in the record that EPA intended to reserve any discretion on the matter.

b. The Eighth Circuit's ruling thus conflicts with decisions by this Court and other circuits, especially the D.C. Circuit. Hercules does not argue simply that the Eighth Circuit "misapplied" the D.C. Circuit's test. BIO 17. Rather, the Eighth Circuit – while giving lip service to D.C. Circuit precedent – actually minted a new test, one that permits an

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[2] The sum total of EPA's explanation for the landfill and off-site areas was: "The cancer potency factor used in the 1986 EA was 156.000 $(mg/Kg/day)^{-1}$. This continues to be the cancer potency factor used in EPA risk assessments for 2,3,7,8-TCDD (EPA, 1989)." JA21302. EPA made no attempt in the administrative records to justify these assumptions.

agency to circumvent the APA requirements of notice and comment rulemaking and judicial review by hiding legislative rules in "policy statements" or "guidance" documents.

The Eighth Circuit ignores this Court's instruction that "[t]he particular label placed upon [an agency order] by [an agency] is not necessarily conclusive, for it is the substance of what the [agency] has purported to do and has done which is decisive." *Columbia Broad. Sys. v. United States,* 316 U.S. 407, 416 (1942). The Eighth Circuit elevated form over substance. It created a new standard that makes the label decisive and gives determinative effect to an agency's words, even if expressed only in litigation briefs. The Eighth Circuit opined that EPA was entitled to reject a lower potency factor proposed by Hercules because it was "contrary to EPA guidance and resulted in cleanup goals much less restrictive than those calculated by the EPA." Pet. App. 21a (quoting JA16407). But this statement was simply another way of explaining that EPA could reject any estimate that was not in accord with its official policy.

There can be no doubt that, if this case had arisen in the D.C. Circuit, the court of appeals would have correctly recognized the dioxin potency factor as a legislative rule and therefore would have required rulemaking. The Government does not even bother to *cite* – let alone distinguish – *General Elec. Co. v. EPA*, 290 F.3d 377, 384-85 (CADC 2002), where the D.C. Circuit vacated an EPA "guidance document" with a cancer potency factor for PCBs, because "an agency pronouncement will be considered binding if it . . . is applied by the agency in a way that indicates it is binding." *Id.* at 383 The instant case, like *GE*, involves a cancer potency factor used by EPA to drive cleanup choices – choices that translate into the expenditure of very real dollars. Like *GE*, this case involves a guidance document – here, the 1985 Health Assessment. As in *GE*, there is no evidence in the record that EPA retained any discretion whatsoever to alter the potency factor. *See also CropLife Am. v. EPA,* 329 F.3d 876, 883

(CADC 2003) (rejecting EPA claim that directive was merely a "policy statement": "*General Electric* and other cases also make it clear that the agency's characterization of its own action is not controlling if it self-servingly disclaims any intention to create a rule with the 'force of law,' but the record indicates otherwise"); *Appalachian Power Co. v. EPA*, 208 F.3d 1015, 1021 (CADC 2000) (EPA "Guidance" document was a legislative rule: "If an agency acts as if a document issued at headquarters is controlling in the field, if it treats the document in the same manner as it treats a legislative rule, . . . then the agency's document is for all practical purposes 'binding.'").

c. In its defense of EPA, the Government notes that "there has been no prior litigation" over the dioxin potency factor. BIO 18. But that is just the point. By shielding the factor from rulemaking and judicial review, EPA has avoided both public and legal scrutiny of its misguided science. The "under-the-radar" nature of EPA's $100 billion dioxin policy is a vice, not a virtue.

The Government asserts that EPA's uniform use of its dioxin potency factor "could just as easily support the conclusion that the cancer potency factor is well-supported by scientific evidence." BIO 18. That assertion is preposterous in light of the detailed analysis in the amici briefs supporting certiorari. EPA itself has long been aware of the scientific flaws in its dioxin potency factor, yet has stubbornly clung to it, without a rulemaking or judicial review.[3] This is yet

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[3] In 1991, EPA announced that it would conduct a reassessment of dioxin. JA17776-87. EPA submitted the Reassessment to its Science Advisory Board (SAB) for review, and in 1995 the SAB strongly criticized EPA's failure to justify its continued reliance on the linear extrapolation model, concluding that "[t]he cancer risk assessment models applied to the human data by EPA are conceptually flawed." JA14967-68. Prominent scientists publicly protested the absence of peer review. JA15015-16. Congress also voiced strong criticism of EPA. As part of the 1996 Appropriations Bill, Committees of both Houses explained that "it is widely held in the

another instance of circuit conflict. The D.C. Circuit has held that an agency's reliance on facts it knows to be wrong is the essence of arbitrary and capricious decisionmaking. *Chlorine Chemistry Council v. EPA*, 206 F.3d 1286, 1290-91 (CADC 2000) (EPA standard was "arbitrary and capricious" and inconsistent with "best available science"); *Leather Industries v. EPA*, 40 F.3d 392, 404-05 (CADC 1994) (Wald, J.).

3. This Petition is the best vehicle for this Court to decide the questions presented. The Petition in No. 06-853 does not present the APA issue concerning the dioxin potency factor. In addition, this case is the better vehicle to decide the retroactivity question. Hercules faces substantially greater retroactive liability than Chemtura because the District Court allocated 97.4 percent of the Vertac site costs to Hercules (and only 2.6 percent to Chemtura) and all of the landfill costs to Hercules as well. Pet. App. 8a. Moreover, Hercules' operations at the Vertac site ended a decade before CERCLA took effect on December 11, 1980. By contrast, Chemtura continued to do business with Vertac until only months before Vertac ceased to manufacture 2,4,5-T. Pet. App. 6a.

CONCLUSION

The petition for writ of certiorari should be granted.

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scientific community that EPA's draft dioxin risk characterization document (chapter 9) . . . does not accurately reflect the science on exposures to dioxins and their potential health effects. . . . The Committee also understands that inaccuracies and omissions in the risk characterization chapter, which have been noted and criticized by EPA's [SAB] and the general scientific community, were the result of the agency's failure to consult with and utilize the assistance of the outside community in writing chapter 9." H.Rep. 104-201, at 53-54 (1995). *See also* S.Rep. 104-140, at 89 (1995). But EPA did not alter the dioxin potency factor. EPA produced another version of the Reassessment in 2000, again ignoring the SAB and Congress. This time, a different SAB leveled much the same criticisms. *See* www.epa.gov/sab/pdf/ec01006.pdf, at 5-6, 44-46, 49-50. The National Academy of Sciences issued its own critical report in July 2006.

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March 2007

(2)

No. 06-865

IN THE
Supreme Court of the United States

HERCULES INCORPORATED,

Petitioner,

v.

UNITED STATES OF AMERICA,

Respondent.

On Petition for a Writ of Certiorari to the United States Court of Appeals for the Eighth Circuit

BRIEF OF AMERICAN CHEMISTRY COUNCIL AS *AMICUS CURIAE* IN SUPPORT OF PETITIONER

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CORPORATE DISCLOSURE

American Chemistry Council – The American Chemistry Council is a trade association representing U.S. chemical companies. The American Chemistry Council has no publicly owned parent corporation, and no publicly owned corporation owns more than 10% of its stock.

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INTEREST OF AMICUS[1]

Amicus the American Chemistry Council (ACC) represents the leading companies engaged in the business of chemistry. ACC members apply the science of chemistry to make innovative products and services that make people's lives better, healthier and safer. The business of chemistry is a $558 billion enterprise and a key element of the nation's economy. It is one of the nation's largest exporters, accounting for ten cents out of every dollar in U.S. exports.

Amicus and its members have a strong interest in ensuring that the federal government's regulation of chemicals is based on the most accurate and up-to-date scientific information regarding the effects of exposure to chemicals and other products. It thus has a strong interest in opposing actions such as those taken by the U.S. Environmental Protection Agency here that regulate the disposal and treatment of chemicals without basing that regulation on an adequate scientific foundation and without subjecting that regulation to judicial review as Congress intended. The American Chemistry Council participates regularly in federal court litigation both as a party and as amicus curiae.

SUMMARY OF ARGUMENT

The issues presented in the petition are of paramount importance. As noted in the petition, the Environmental Protection Agency ("EPA") consistently applies a standard potency factor for dioxin that effectively dictates the remedial actions required at chemical disposal sites around the country. That potency factor, however, has never been subjected to notice-and-comment rulemaking. The EPA has

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[1] No person or entity other than amicus and their counsel made a monetary contribution to the preparation or submission of this brief. Counsel of record for the parties have consented to the filing of this brief, and letters of consent have been filed with the clerk.

thus never had to consider the full range of scientific evidence that bears on the dioxin potency standard; nor has it ever had to satisfy any level of independent judicial review in holding to that factor.

That is of critical importance here because EPA has its science wrong. Despite several decades of intensive epidemiological research on populations of production workers and military personnel who may have had high exposures to dioxin, there is no scientific consensus that exposure to 2,3,7,8-tetrachlorodibenzo-p-dioxin ("TCDD" or "dioxin") causes soft-tissue sarcoma, non-Hodgkin's lymphoma, multiple myeloma, or any other cancer. To the contrary, the best-designed studies refute any assertion of causation. Indeed, more than thirty years of serious scientific analysis and scores of epidemiological studies have failed to demonstrate even a consistent *association* between exposure to dioxin and any particular cancer.

The federal courts examining the scientific literature involving dioxin have consistently recognized the lack of evidence showing a causal link between dioxin exposure and cancer risks. Judge Weinstein, for example – who has presided over 20 years of Agent Orange[2] litigation in the District Court for the Eastern District of New York – has repeatedly found that plaintiffs in that litigation lack scientific support for their causation theories, and the Second Circuit has consistently echoed those findings.

These court decisions are backed by science, not speculation. For example, a recent Institute of Medicine Report expressly disclaims any conclusions as to causation

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[2] Agent Orange was a 50/50 mixture of two concentrated herbicides (2,4-Dichlorophenoxyacetic acid and 2,4,5-Trichlorophenoxyacetic acid). Neither is considered a carcinogen, but the latter contained trace amounts of TCDD. Hence, the Agent Orange litigation, insofar as the claims are based on cancer, indirectly focuses on TCDD.

and, moreove[illegible]pressly recognizes that "it is impossible to quantify the degree of risk likely to be experienced by veterans because of their exposure to herbicides in Vietnam." Institute of Medicine, *Veterans and Agent Orange: Update 2004 at* 17 (2005) ("2004 IOM Report"). Similarly, there is no coherent and consistent evidence for a link between dioxin and cancer risk in heavily-exposed dioxin production workers. There is simply no substantial scientific support for the hypothesis that dioxin causes cancer in humans.

Despite this uncertain evidence regarding highly exposed persons, the EPA continues to employ a cancer potency factor that is based on a linear, no-biological-threshold model to extrapolate laboratory animal findings to persons with the very lowest levels of dioxin exposure. This model, which has been routinely criticized even by EPA's own Scientific Advisory Boards and other independent scientific panels, assumes that, if a high exposure to something increases cancer risk, then (1) there is no "safe" or "threshold" exposure below which there is no cancer risk (i.e., any exposure increases cancer risk) and (2) cancer risk increases linearly with exposure. This model, however, is not supported by the science. This is, in short, a situation in which full notice-and-comment rulemaking followed by judicial review would make a difference.

Moreover, the stakes are high, as this case demonstrates. EPA applied its scientifically unsupported standard to impose over one hundred million dollars in clean-up costs on Hercules, and EPA itself has acknowledged that dioxin-related litigation and regulatory response expenditures have likely exceeded $100 billion. Given the stakes, EPA may not cling to its no-threshold model and the resulting potency standard while maintaining that the standard is immune from all judicial review. Review by this Court is thus appropriate.

ARGUMENT

I. COURTS RECOGNIZE THAT DIOXIN EXPOSURE HAS NOT BEEN SHOWN TO CAUSE CANCER.

EPA's cancer potency factor is based on the flawed premise that dioxin has been shown to cause cancer. However, as recognized by a number of courts that have examined the science behind dioxin, despite decades of litigation there has been no credible evidence presented even in highly exposed persons that dioxin actually causes cancer.

The seminal decisions involving Agent Orange (and thus dioxin) exposure have been issued by Judge Weinstein in the Eastern District of New York. Judge Weinstein, more than any other sitting federal judge, has been steeped in the scientific literature associated with Agent Orange and dioxin for well over twenty-five years and has been uniquely situated to evaluate that literature as a result of handling that consolidated Agent Orange litigation. While his recent opinion, *In re "Agent Orange" Production Liability Litigation,* 304 F. Supp. 2d 404, 424-42 (E.D.N.Y. 2004), focuses primarily on how the government contractor defense forecloses plaintiffs' claims, in the course of that opinion, the court offered a tentative assessment of plaintiffs' claims that their diseases – principally multiple myeloma and non-Hodgkin's lymphoma – resulted from their exposure to Agent Orange while serving in the U.S. military in Vietnam. Judge Weinstein noted that "[i]n earlier waves of such suits in the 1970s, 1980s and 1990s, the courts concluded that none of the available evidence would support a finding to a more-probable-than-not standard of causality between exposure to Agent Orange and disease (except for a quickly

discoverable and curable form of skin irritation, chloracne)."[3] *Id.* at 407. He went on to note that "[t]he scientific basis for that conclusion of lack of any substantial proof of causality, either general or specific to individuals, remains much the same." *Id.* (citing Institute of Medicine, *Veterans and Agent Orange: Update 2002* (2003)). This conclusion was based on his continuing review of the scientific literature on dioxin and Agent Orange in connection with the ongoing litigation in *In re "Agent Orange" Production Liability Litigation,* MDL No. 381.[4]

It is also in the context of this Agent Orange litigation that the Second Circuit has gained considerable experience in addressing the scientific causation issues. That court first addressed the issue in 1987 when it affirmed the certification and settlement of class actions brought in the initial wave of Agent Orange litigation. *See In re "Agent Orange" Production Liability Litigation*, 818 F.2d 145 (2d Cir. 1987). Writing for a unanimous court, Judge Winter noted that "the clear weight of scientific evidence casts grave doubt on the

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[3] Chloracne is linked to dioxin exposure, but not exposure to the basic herbicides.

[4] The docket sheet in the Agent Orange MDL reflects more than 150 entries from 1984 through 2005 describing scientific journals and articles relating to Agent Orange and the health consequences of exposure that Judge Weinstein has read and of which he has taken "judicial notice." Throughout the mid-1990s, for example, Judge Weinstein took notice of reports such as the EPA Health Assessment Documents for Tetrachlorodibenzo-p-Dioxin and Related Compounds on Oct. 21, 1994 (docket entry 14679); EPA Review Draft Documents for Public Review for 120 day public review and comment (docket entry 14790); Estimating Exposure to Dioxin-Like Compounds Volume 1 Executive Summary (docket entry 14791); Health Assessment Document for 2,3,7,8 TCDD and Related Compounds (docket entry 14792); Estimating Exposure to Dioxin Like Compounds, Volume 11, Properties, Sources, Occurrences and Background Exposures (docket entry 14794); and EPA Review Draft Estimating Exposure to Dioxin Like Compounds (docket entry 14795).

capacity of Agent Orange to injure human beings," *Id.* at 149, and that "[e]pidemiological studies of Vietnam veterans, many of which were undertaken by the United States, Australian, and various state governments, demonstrate no greater incidence of relevant ailments among veterans or their families than among any other group." *Id.*; *see also In re "Agent Orange" Production Liability Litigation*, 818 F.2d 187, 193 (2d Cir. 1987) (noting that "epidemiological studies of those very personnel and their families fail to show that Agent Orange was hazardous"). The Court observed that the pertinent question was "'What will Agent Orange do to friendly personnel exposed to it?'" The epidemiological studies provided an answer: "'Nothing harmful so far as can be told.'" *Id.*

The Second Circuit revisited the issue in 1993, when it affirmed Judge Weinstein's conclusion that the initial Agent Orange class settlement barred plaintiffs' claims in the so-called "second wave" of Agent Orange litigation. *In re "Agent Orange" Production Liability Litigation*, 996 F.2d 1425 (2d Cir. 1993). Again speaking unanimously, the court quoted scientific literature making clear that "'[t]o date, there has been no conclusive evidence that exposure to Agent Orange is carcinogenic, mutagenic or teratogenic in humans. Furthermore, no deaths attributable solely to exposure to Agent Orange and its dioxin contaminant have been reported.'" *Id.* at 1437 (quoting 13B Arthur L. Frank, *Courtroom Medicine: Cancer* § 25A.00, at 25A-4 (1992)).

The conclusions at that time were based in part on the extensive scientific record that Judge Weinstein had compiled and analyzed. In 1985, for example, Judge Weinstein surveyed the evidence advanced by the plaintiffs. Focusing in particular on epidemiological studies, Judge Weinstein concluded that "[n]o acceptable study to date of Vietnam veterans and their families concludes that there is a causal connection between exposure to Agent Orange and the

serious adverse health effects claimed by plaintiffs." *In re "Agent Orange" Production Liability Litigation*, 611 F. Supp. 1223, 1231 (E.D.N.Y. 1985), *aff'd on other grounds*, 818 F.2d 187 (2d Cir. 1987). The court concluded that there was simply no "credible evidence of a causal link between exposure to Agent Orange and the various diseases from which [the plaintiffs] are allegedly suffering." *Id.* at 1229.

Judge Weinstein's lengthy and scholarly opinion addressing the claims brought by the Vietnam Association for Victims of Agent Orange/Dioxin reflects the same thorough grounding in the relevant scientific literature. *See In re "Agent Orange" Production Liability Litigation*, 373 F. Supp. 2d 7, 19, 22-23, 32 (E.D.N.Y. 2005) (discussing recent scientific articles and explaining why they do not alter the court's conclusions as to lack of proof of exposure or causation). He noted that "[p]roof of causal connection depends primarily upon substantial epidemiological and other scientific data, particularly since some four million Vietnamese are claimed to have been adversely affected," and that plaintiffs' "[a]necdotal evidence . . . can not suffice to prove cause and effect." *Id.* at 32. Although the case was dismissed on other grounds, Judge Weinstein noted that epidemiological studies regarding Vietnamese plaintiffs are not available "with the richness of demographic and other data published in the United States," and he cited recent articles suggesting that the existing body of epidemiological literature was insufficient. *Id.*

Although Judge Weinstein has had the most experience with such cases, his decisions do not stand-alone. For example, in *Chemical Weapons Working Group, Inc. v. United States Department of the Army*, 935 F. Supp. 1206 (D. Utah 1996), *aff'd*, 111 F.3d 1485 (10th Cir. 1977), an environmental group sought an injunction to stop the U.S. Army's proposed operation of a facility to incinerate chemical warfare agents, which would create TCDD as a

byproduct. Discussing the science on dioxin, the court noted that "[a]lthough plaintiffs argue that any increase in the levels of dioxin exposure is unacceptable, the danger associated with relatively small increases is far from certain, and the evidence presented by plaintiffs is insufficient to support a finding that such danger is likely to be significant." *Id.* at 1213. The court also critiqued the assessment done by Utah's Department of Environmental Quality, noting that "[u]ltimately, the court finds that the Utah DEQ assessment is intended to show an area of safety, not predict an actual level of risk. Although plaintiffs have shown that the assumptions applied in the State's health risk assessment may indicate a higher level of risk for some hypothetical persons, this does not constitute a showing that there is an actual risk to some person or persons posed by the emissions levels predicted for the facility." *Id.* at 1214. As a matter of law, the court concluded that "the asserted risks of harm due to dioxin exposure are too speculative to qualify as irreparable harm to plaintiffs." *Id.* at 1215.

II. THERE IS NO CONSISTENT PATTERN OF ELEVATED CANCERS IN STUDIES OF INDUSTRIAL WORKERS EXPOSED TO DIOXIN

Production workers exposed to dioxin in industrial settings are generally considered to have the highest documented exposures of any of the cohorts studied in the epidemiological literature.[5] Most members of this group were exposed during the course of their work in industrial plants. However, even for these high levels of exposure, the results of the major epidemiological studies remain largely

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[5] Higher exposure levels have been reported in rare instances of intentional dioxin poisoning. *See, e.g.*, Alexandra Geusau, et al., *Severe 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) Intoxication: Clinical and Laboratory Effects*, 109 Envtl. Health Persp. 865 (2001).

negative, with occasional weak and inconsistent findings. In fact, among humans, the only disease found to be causally related to TCDD is chloracne, which is a reversible skin condition that develops shortly after high levels of exposure to dioxin. *In re "Agent Orange" Production Liability Litigation*, 304 F. Supp. 2d at 407.[6]

A relatively recent comprehensive review article on the evidence relating to the "hypothetical cause-effect relationship" between 2,3,7,8-TCDD and cancer concludes that "[t]he long-term accumulation of negative, weak, and inconsistent findings suggests that TCDD eventually will be recognized as not carcinogenic for humans." Philip Cole, et al., *Dioxin and Cancer: A Critical Review*, 38 Reg. Toxicology & Pharmacology 378, 378 (2003). Cole et al. examined the scientific research on dioxin from three perspectives: (1) an analysis of the evidence available through 1997, with emphasis on the review done by the International Agency for Research on Cancer (IARC) in its 1997 Monograph 69, (2) a review of epidemiologic reports issued after 1997 Monograph was published, and (3) an evaluation of the EPA's ongoing risk assessment. Cole et al. concluded that "[i]t is clear from this review that the evidence does not support the IARC's classification of TCDD as a Group 1 carcinogen. In fact, the evidence

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[6] Indeed, studies done in worker populations who were exposed to dioxin at sufficient levels to develop chloracne show "no clear evidence of a causal association between any cause of mortality and potential occupational exposures to the higher chlorinated phenols, derivative products, or the chlorinated dioxins." *See* Gregory G. Bond, et al., *Update of Mortality among Chemical Workers with Potential Exposure to the Higher Chlorinated Dioxins*, 31 J. Occupational Med. 121, 123 (1989); Cole et al., *supra*, at 383 ("Interestingly, even chloracne has not been associated with significant risks of cancer as would be expected if moderate to high TCDD exposures were carcinogenic.").

indicates that TCDD is not carcinogenic to human beings at low levels and that it may not be carcinogenic to them even at high levels. Cole et al., *supra*, at 386. The conclusion of this recent, comprehensive review of the dioxin literature is directly contrary to the EPA's use of its no-biological-threshold model, which is derived from the weak and inconsistent findings for the most highly exposed industrial worker cohorts, to fix a supposed level of cancer risk in humans with low exposures—without any support in the actual epidemiological literature for such low exposure populations.

Cole et al. also addressed the question of how, "in the absence of sufficient epidemiologic evidence, a conclusion of human carcinogenicity was drawn." *Id.* at 381.

> There are four reasons why so much attention has been focused on TCDD. First, TCDD is the most toxic PCDD. Even though toxicity and carcinogenicity are different, the high toxicity of TCDD has contributed to its overall notoriety. Second, TCDD has been linked closely to a major war (Vietnam) and to a major industrial accident (Seveso), both of which attracted widespread attention and increased suspicion that TCDD imposes a risk of cancer. Third, TCDD is an animal carcinogen, although for tumor types that bear little relationship to those allegedly linked to it in humans. Generalizing to humans from animals is fraught with difficulty, and animal evidence is often not a good predictor of human carcinogenicity. Fourth, the original epidemiologic studies of TCDD were represented as positive. However, these early studies, all by Hardell

> et al., have not been confirmed by other investigators. Nevertheless, it is difficult to erase from the collective consciousness the widely publicized early studies.

Id. at 381-82.

As aptly described by Cole et al., virtually the only "science" behind the suspicion that TCDD may cause cancer are the so-called "Hardell studies" conducted initially in the late 1970s by a group of Scandinavian epidemiologists/oncologists. The Hardell studies were case-control studies of pesticide applicators that focused on soft-tissue sarcoma and malignant lymphoma. Importantly, however, in the 20-plus years since these studies were conducted, no other investigators have been able to replicate the results, and contemporaneous case-control studies by other investigators "uniformly produced non-significant associations." Cole et al., *supra*, at 383. Courts have also recognized the limitations of the Hardell studies. Judge Weinstein, after examining these studies in depth expressly noted:

> The parties, and especially plaintiffs, rely on over one hundred epidemiological studies not conducted by government officials and as such not subject to the 803(8)(C) exception. . . . Most of the studies rely on inapposite data and would be excluded under Rules 401 to 403. Some of them on industrial exposure have been recognized as flawed. *See, e.g., Palmer v. Nova Scotia Forest Industries*, 60 N.S.R. (2d) 271, 352-53, 2 D.L.R. (4th) 397 (S.Ct. Nova Scotia, 1983) (Nunn, J.) (refusing to enter injunction against spraying of 2-4-D, 2,4,5-T-phenoxy herbicides in part *because expert*

> *studies, such as Hardell's, showing alleged adverse health effects were widely recognized as flawed).*

In re "Agent Orange" Prod. Liab. Litig., 611 F. Supp. at 1241 (emphasis added).

Studies of industrial workers further weaken any suggested links between TCDD and cancer in humans. The study by Manolis Kogevinas, *Cancer Mortality in Workers Exposed to Phenoxy Herbicides, Chlorophenois, and Dioxins*, 145 Am. J. Epidemiology 1061 (1997), which involved "'the largest overall cohort of 2,3,7,8,-TCDD-exposed workers'" Cole et al., *supra*, at 381, (quoting IARC Monograph at 161), found an overall relative risk of 1.1 Cole et al., *supra*, at 381, (citing Kogevinas et al. at 144 (1997)).[7]

This lack of consistent evidence of increased cancer risk associated with TCDD is further supported by the results of a recent study examining the long-term mortality experience of a cohort of 2187 male chemical plant production workers. The cohort of workers, which was a subset of the Kogevinas cohort, had previously been exposed to substantial levels of dioxin prior to 1983. K.M. Bodner, et al., *Cancer Risk for Chemical Workers Exposed to 2,3,7,8-*

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[7] The Kogevinas study did show a slight, but statistically significant increase in the rate of overall cancers associated with high-levels of occupational exposure. As Cole et al. noted, however, it is unprecedented that a chemical would increase the risk of all cancers, but not increase the risk of any specific cancer. "There is . . . no single chemical that is known to cause cancer at many organ sites." Cole et al., *supra*, at 380. Even the International Agency for Research on Cancer (IRAC) acknowledged that "this lack of precedent for a multi-site carcinogen without particular sites predominating means that the epidemiology data must be treated with caution. . ." Int'l Agency for Research on Cancer, World Health Org., *IARC Monograph on the Evaluation of Carcinogenic Risks to Humans* at 337, 338 (1997).

tetrachlorodibenzo-p-dioxin, 60 Occup. and Envtl. Med. 672-75 (2003). The Bodner study was the most recent in a series examining the cohort, and therefore has the most current mortality statistics and involves the longest latency period. e mortality rates were compared with both national figures and with a pool of coworkers in unrelated production jobs. The study showed that all cancers combined for this cohort were at or below expected levels.[8] The Bodner study also noted that workers who developed chloracne -- presumably the workers who had the highest exposure levels generally -- had very low all-cancer rates. The report concluded that "[d]espite some unanswered questions, we find no coherent evidence that this cohort has an increased risk of cancer collectively, or of any particular type of cancer that can be attributed to dioxin exposure." *Id.* at 675.

III. STUDIES ON MILITARY PERSONNEL EXPOSED TO DIOXIN CONSISTENTLY FAIL TO DEMONSTRATE A CAUSAL LINK BETWEEN DIOXIN AND CANCER

The Air Force has spent hundreds of millions of dollars following the health histories of the group of Vietnam veterans who clearly were the most highly exposed individuals during that conflict—the Operation Ranch Hand personnel who loaded and sprayed Agent Orange. That ongoing study of the Ranch Hand veterans has shown no marked excess of cancer even now, thirty-five to forty years after the exposure.[9]

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[8] Although the rates for soft tissue sarcoma and non-Hodgkin's lymphoma were greater than expected during the prior study period, the rates of these cancers did not increase at the expected rate during the update period.

[9] The 2005 report of this study concludes that "the significant associations between herbicide exposure or dioxin levels and the likelihood of developing cancer were seen primarily for Ranch Hand

The Ranch Hand study examined veterans who serviced, loaded, and flew the fixed-wing aircraft used for herbicide spraying missions in Vietnam and compared them to veterans who flew similar aircraft in Southeast Asia during the time of the Vietnam War but never flew herbicide missions and were not exposed to Agent Orange in their missions. Elevated serum levels of dioxin confirmed that the Ranch Hand group had been exposed to Agent Orange. Logically, if one were to find an increased risk from Agent Orange exposure in any group of Vietnam veterans, it would first show up in the most heavily exposed Ranch Hand group. However, study of the Ranch Hand veterans has not found any cancer-related health effects caused by Agent Orange exposure, *see* Joel E. Michalek *et al., The Air Force Health Study: A Summary of Results*, 54 Organohalogen Compounds 396 (2001), and the overall cancer mortality rate is similar to the comparison group, See Fatema Z. Akhtar *et al., Cancer in U.S. Air Force Veterans of the Vietnam War*, 42 J. Occupational & Envtl. Med. 123 (2004).[10]

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officers and Ranch Hands in the low dioxin category, which were the lower-exposed subgroups, on average. Some of these associations also may have been due to chance or to a lack of adjustment for a factor not considered in these analyses." Science Applications Int'l Corp., *Air Force Health Study Final Report, An Epidemiologic Investigation of Health Effects in Air Force Personnel Following Exposure to Herbicides – 2002 Follow-up Examination and Results*, 10-138 (2005).

[10] Akhtar et al., *supra*, conducted a comparison of cancer incidence in a cohort of Ranch Hand and Comparison veterans relative to the general United States white population and found a positive association with prostate cancer and melanoma in both groups of veterans. However, some researchers question whether a comparison of these cohorts is scientifically valid. Both melanoma and prostate cancer are frequently undiagnosed for many years in the general population, leading to a detection bias in favor of the Ranch Hand veterans. *See* Marian Pavuk, et al., *Prostate Cancer in US Air Force Veterans of the Vietnam War*, 16 J. Exposure Sci. & Envtl. Epidemiology, 184, 188 (2006) ("Air Force

Similar findings were made in the most recent Institute of Medicine ("IOM") Report, which concluded that "in general, *it is impossible* to quantify the degree of risk likely to be experienced by veterans because of their exposure to herbicides in Vietnam." 2004 IOM Report at 17 (emphasis added); *see also Id.* at 7 (noting that the "lack of adequate data on Vietnam veterans themselves makes it difficult to reach conclusions about increased risk of disease among Vietnam veterans"). The Report highlights the inadequacy of the current state of the scientific record, decrying "the lack of data on Vietnam veterans, the large uncertainties about the magnitude of potential risk posed by exposure to herbicides in epidemiologic studies, the inadequate control for other important risk factors in many epidemiologic studies, and the uncertainty about the nature and magnitude of exposure to herbicides in Vietnam." *Id.* at 7. Indeed, far from reflecting a scientific consensus that Agent Orange has caused cancer in Vietnam veterans, the Report highlights the need "for additional scientific studies to resolve continuing scientific uncertainties about the health effects of the herbicides used in Vietnam and their contaminants." *Id.* at 10.

For public policy reasons, Congress created a program of compensation for Vietnam veterans without requiring reliable scientific evidence of the health effects of Agent Orange exposure. Pursuant to the Agent Orange Act of 1991, the IOM was directed to "provide scientific information for the Secretary of Veterans Affairs" to aid in the implementation of the compensation program. *Institute of Medicine, Veterans and Agent Orange: Health Effects of*

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veterans have been more closely followed than the general population and underwent repeated medical examinations that may partly explain excesses seen in that study."); Akhtar et al., *supra*, at 133 (acknowledging the potential for detection bias in the melanoma findings).

Herbicides Used in Vietnam at 227 (1994) ("1994 IOM Report"). The IOM's periodic reports – the first was published in 1994, and the IOM has issued updated reports every two years since – have done just that. The IOM, however, has expressly disclaimed any intent to make causation assessments, noting that its "charge was n[ot] to focus on questions of causation," *Id.*, and explaining that its categorization of diseases was "based on 'statistical association,' not on causality as is common in scientific reviews," *Id.* at 246; *see also e.g.*, 1994 IOM Report at 7, 572; 2004 IOM Report at 7 ("As mandated by PL 102-4, the distinctions among categories are based on statistical association, not on causality."). As the Federal Judicial Center's *Reference Manual on Scientific Evidence* explains, however, "an association is not equivalent to causation":

> An association identified in an epidemiologic study may or may not be causal. Assessing whether an association is causal requires an understanding of the strengths and weaknesses of the study's design and implementation, as well as a judgment about how the study findings fit with other scientific knowledge.

Federal Judicial Center, *Reference Manual on Scientific Evidence* 336-37 (2d ed. 2000) (footnote omitted).[11]

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[11] The peril of conflating association with causation is not unique to the dioxin context. In some early epidemiological studies, for example, coffee drinking was associated with lung cancer. However, coffee drinking used to be highly associated with smoking cigarettes, thus smoking was a "confounding" variable. Once smoking was controlled for, the association between coffee drinking and lung cancer disappeared. *See* Junius C. McElveen, Jr. & Chris Amantea, *Legislating Risk Assessment*, 63 U. Cin. L. Rev. 1553, 1581 (1995).

The vast gulf between association and causation has been well established in the context of Agent Orange. As described in *Nehmer v. United States Veterans' Administration*, 712 F. Supp. 1404, 1407-08 (N.D. Cal. 1989), the Veterans Administration ("VA") initially adopted a causation standard to govern eligibility for disability benefits under the Veterans' Dioxin and Radiation Exposure Compensations Standards Act of 1984. Applying that standard, the VA denied more than 31,000 claims for compensation in the first three years of the program. *Id.* at 1408. That causation standard was declared invalid in *Nehmer*, *see id.* at 1416-20, and was replaced with a standard requiring only a "significant statistical association," *id.* at 1420. Under that more relaxed standard, the VA has granted thousands of claims and is paying hundreds of millions of dollars in Agent Orange benefits.

The distinction between association and causation is particularly significant in the present context because of the congressional mandate to assess only the former. The IOM thus considers the link between chemical exposure and disease to be sufficient when "a positive association has been observed between herbicides and the outcome in studies in which chance, bias, and confounding could be ruled out with reasonable confidence." *Institute of Medicine, Veterans and Agent Orange: Update 2002* at 8 (2002) ("2002 IOM Report"). "Several small studies that are free of bias and confounding" may be sufficient evidence of an association when the results are "consistent in magnitude and direction," *Id.* at 14, even if larger and more reliable studies fail to replicate the small studies and even report results to the contrary.

There is, in short, nothing even approaching a "scientific consensus" that Agent Orange has caused cancers in Vietnam veterans, and nothing in the IOM Report suggests otherwise. As the record in the Agent Orange litigation

indicates, the Ranch Hand Study and the other studies of Vietnam veterans "effectively rule out the possibility of widespread health effects in Vietnam veterans due to Agent Orange."

IV. EPA'S SCIENCE ADVISORY BOARD AND THE NATIONAL ACADEMY OF SCIENCE HAVE BOTH NOTED THE ABSENCE OF ANY CONSISTENT, REPLICABLE PATTERN OF INCREASED CANCERS IN THE EPIDEMIOLOGY LITERATURE.

In 1995, EPA's Science Advisory Board ("SAB") issued a powerful critique of the agency's Dioxin Reassessment. Among other criticisms, the SAB stated that "the presentation of scientific findings portrayed in the draft document's conclusions is not balanced vis-à-vis the possible risks posed by exposure to dioxin, with a tendency to overstate the possibility for danger." JA18028. The SAB further noted that the evidence "for the purported mechanisms that link receptor binding to toxic effects in humans" was "quite mixed," making it "difficult to document a dioxin-cancer relationship." JA18066. Although the SAB concluded that EPA had fairly summarized the findings, strengths and weaknesses of the relevant epidemiological studies, the SAB was quite firm in its additional conclusions that "TCDD is not a complete carcinogen" and that the risk-specific dose estimate supplied by EPA's cancer potency factor "is not supported by the available data." JA18077, 18101.

In addition to the findings above, SAB recommended that EPA revise the dioxin risk characterization and the dose-response modeling chapters of its report.[12] Because of the

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[12] SAB also recommended that EPA develop of a new section on dioxin toxicity equivalence factors (TEF).

complexity of the science issues related to dioxin, the SAB suggested that the subsequent draft undergo an additional level of review by independent external peer reviewers before being brought back to the SAB for review.

In 2000, a revised reassessment was submitted to SAB. Surprisingly, despite the prior criticism of its cancer potency factor, EPA did not revise its flawed no-threshold model. SAB was again critical of EPA's dioxin risk characterization, noting (1) the lack of consensus about the strength of the epidemiological data suggesting that dioxin is carcinogenic in humans; (2) the lack of consensus on a single value for a dioxin potency factor; and (3) EPA's failure to assess non-cancerous affects to establish a reference dose characterization. *See generally*, EPA, *Dioxin Reassessment - on SAB Review of the Office of Research & Development's Reassessment of Dioxin* 2-11 (2001). EPA undertook further revisions. At this point, the Department of Agriculture, concerned that enforcement of EPA's cancer potency factor could imperil large portions of the country's food supply, assembled an Interagency Working Group made up of representatives from seven federal agencies that recommended further review of EPA's 2003 revision of the Dioxin Reassessment. EPA then asked the National Research Council (NRC), the operating arm of the National Academy of Sciences, to convene an expert committee to review independently EPA's Reassessment. National Research Council, *Health Risks from Dioxin and Related Compounds: Evaluation of the EPA Reassessment*, at 9(July 2006).

The NRC strongly criticized EPA's continued reliance on the linear, no threshold model:

> [S]election of the default linear extrapolation approach for carcinogenicity emerged as one of the most critical decisions in the 2003 Reassessment. The committee

> concludes that EPA did not support its decision adequately to rely solely on this default linear model and recommends that EPA add a scientifically rigorous evaluation of a nonlinear model that is consistent with receptor-mediated responses and the recent NTP cancer bioassay studies. The committee determined that the available data support the use of a nonlinear model, which is consistent with receptor-mediated responses and a potential threshold. . . .

Id. at 17.

Although the NRC made no effort to calculate a cancer potency factor using a non-linear model, it seems clear that any such calculation will yield a factor which will be much lower than the 16-fold reduction that Hercules proposed in the Administrative Records of this case. *See, e.g.*, JA17583 (proposing slope factor of 9,700 $(mg/kg\text{-}day)^{-1}$, using linear model and then-recent histopathology results), JA17585 (noting that other nations had dramatically higher Acceptable Daily Intake (ADI) standards than EPA). Moreover, a "nonlinear model" with "a potential threshold," means that there is some lower level of exposure below which any cancer risk becomes insignificant. And, all the risk models leave open the ever-increasingly likely possibility that dioxin does not cause human cancer even at the highest levels of exposure.

CONCLUSION

The petition for a writ of certiorari should be granted.

Respectfully submitted,

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(4)

No. 06-865

IN THE

Supreme Court of the United States

HERCULES INCORPORATED,
Petitioner,

v.

UNITED STATES OF AMERICA,
Respondent.

On Petition for a Writ of Certiorari to the United States Court of Appeals for the Eighth Circuit

BRIEF OF *AMICUS CURIAE* INDEPENDENT GROUP OF ESTEEMED SCIENTISTS JOHN DOULL, M.D., PHD., DAVID L. EATON, PH.D., HENRY C. PITOT, M.D., PH.D., GERALD N. WOGAN, PH.D., *ET. AL.* AND THE AMERICAN COUNCIL ON SCIENCE AND HEALTH

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INTERESTS OF *AMICI CURIAE* [1]

The *Amici* respectfully submit this brief in support of the Petitioner's request for a writ of certiorari. Specifically, the *Amici* support the Petitioner with regard to its request that this

[1] Pursuant to Rule 37.6, amici certify that no counsel for any party authored this brief in whole or in part. No persons other than the *amici curiae* or their counsel made a monetary contribution to the preparation or submission of this brief. Letters reflecting the parties' consent to the filing have been submitted to the Clerk.

Court entertain Question Number Two, "Whether the Environmental Protection Agency's use of its cancer potency factor for dioxin is contrary to the Administrative Procedure Act, 5 U.S.C. § 553. . .".

The *Amici* are world renowned leaders in the fields of toxicology, pharmacology, oncology, pathology, cancer molecular biology, carcinogenesis, cancer epidemiology, and cancer risk assessment. The *Amici* are interested in assuring that important science-based decisions be founded on accepted principles and biological concepts and that the weight of the scientific evidence be a determining factor in the decision-making process.

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The American Council on Science and Health is a consumer education consortium whose members include hundreds of scientists and health professionals.

SUMMARY OF THE REASONS FOR GRANTING THE WRIT

The *Amici* believe that the Writ for Certiorari presents an important legal issue with regard to whether the Environmental Protection Agency can ignore the overwhelming scientific consensus in rendering pervasive regulatory decisions and whether it can avoid accountability and review of its actions. In arriving at the critical decision in its dioxin cancer management program, the cancer potency factor, the EPA disregarded well established principles of pharmacology

and molecular biology in adopting a linear, rather than a threshold-based risk model. The fact that the EPA has ignored the scientific consensus is clearly established by a recent report of the National Academy of Sciences/National Research Council. Moreover, the EPA has failed on numerous occasions to provide adequate scientific bases for rejecting this scientific consensus in favor of a threshold model. These failures dictate a need for this Court to determine whether EPA should be required to hold an APA hearing with all the procedural due process provided therein.

REASONS FOR GRANTING THE WRIT

As scientists interested in cancer risk management, we support the Petitioner's Request for a writ of certiorari. Specifically, we ask this Court to grant the Writ on the issue as to whether the Environmental Protection Agency should be required to hold a hearing, pursuant to the Administrative Procedure Act, 5 U.S.C. § 553 (APA), on the dioxin cancer potency factor. This potency factor is key to formulating a science-based cancer risk management program.

We believe the writ poses an issue of exceptional importance. It presents the question whether the weight of the scientific evidence, as opposed to rigid adoption of a default principle or a particular philosophy, will be the basis for critical regulatory decisions that have a significant effect on us all.

The *Amici* believe that science should be in the forefront in these types of important regulatory and societal decisions. The *Amici* suggest to this Court that when there is a clear worldwide scientific consensus, as there is in this case, the consensus should be a key element in the decision-making process. In this instance, there has been no formal hearing. The worldwide scientific consensus has been ignored in favor of a default decision which even the EPA admits lacks a strong scientific foundation.

The *Amici* are concerned about the scientific, economic, and social consequences of a regulatory process that ignores the well-established scientific principles and avoids accountability and review of its actions.

The *Amici* have taken the extraordinary step of filing this brief in support of the Petitioner's request because we believe that the overwhelming scientific evidence is contrary to the EPA's adoption of a linear approach to modeling cancer risk when the chemical in question (in this case dioxin) is a promoter and causes cancer through a non-genotoxic receptor-mediated mechanism. For these kinds of chemicals, there exists a strong presumption that a threshold-based risk assessment is warranted. Absent overwhelming supporting evidence, the use of a purely linear- based model to calculate cancer risk, as EPA has done in this case, is scientifically indefensible.

Consistent with this presumption, The Joint FAO/WHO Expert Committee on Food Additives in its 2002 evaluation of dioxin's toxicity concluded "that a tolerable intake could be established for TCDD on the basis of the assumption that there is a threshold for all effects, including cancer". World Health Organization, *Evaluation of Certain Food Additives and Contaminants* (2002) pg. 141.

The consequences of the misuse of a linear-based model are significant. For example, the EPA in 1993, using the linear model, set the acceptable daily intake of dioxin at 6 fg/kg/day. The Canadian Health and Welfare Department, using a threshold model, set acceptable daily intakes at 10, 000 fg/kg/day.

Amici do not ask this Court to evaluate the scientific merits. Nor do we ask this Court to weigh competing scientific principles. What we do ask is that this important scientific debate be the subject of a formal hearing under the APA, the decision be based on the weight of the scientific

evidence, and that the ruling be subject to the scrutiny provided by judicial review.

In December 2003, the EPA released a preliminary draft document titled *Exposure and Human Health Reassessment of 2,3,7,8-Tetrachlorodibenzo-p-Dioxin (TCDD) and Related Compounds,* referred to as the Reassessment. In its risk characterization of dioxin, the EPA made several statements with which we agree:

> It is important that this characterization convey the current understanding of the scientific community regarding these issues, highlight uncertainties in this understanding, and specify where assumptions have been used or inferences made in the absence of data.
>
> . . .
>
> Binding of dioxin-like compounds to a cellular protein called the aryl-hydrocarbon receptor (AhR) represents the first step in a series of events attributable to exposure to dioxin-like compounds, including biochemical, cellular, and tissue-level changes in normal biological processes. Binding to the AhR appears to be necessary for all well-studied effects of dioxin, but it is not sufficient in and of itself to elicit these responses.
>
> . . .
>
> There is general agreement that the mode of TCDD's carcinogenicity is as an AhR dependent promoter and proceeds through gene expression and/or a modification of the action of a number of receptor and hormone systems involved in cell growth and differentiation, such as the epidermal growth factor receptor and the estrogen receptor.

pgs. 6-1, 6-4, 6-8

The *Amici* would like to provide the scientific information that would permit this Court to understand the significance of these statements. It should be noted that this science is not

novel. The fundamental scientific principles and data have existed for more than twenty years.

First, let us address the question of what is a cancer potency factor.

Nearly all relevant cancer risk data from human epidemiologic studies and experimental animal bioassays reflect doses much higher than those typically experienced by humans from exposure to dioxin. In order to manage cancer risk at levels normally experienced by humans, there must be an extrapolation from the existing data to low level exposures. This extrapolation involves two critical decisions: (1) selecting a "point of departure" (POD), which corresponds to the lowest dose associated with observable adverse effects within the range of data, and (2) selecting the mathematical model used to extrapolate risk for typical human exposures that are well below the POD. These calculations lead to the cancer potency factor, which in turn dictates the important cancer risk management decisions.

Estimating risks below the POD requires making assumptions about how dioxin might cause cancer at the lower exposures. A linear mathematical model assumes that there is a proportional cancer risk at all levels of exposure above zero, regardless of how small the exposure. A threshold model projects that there is a level below which the exposure does not present a cancer risk.

Next, let us explore the significance of the fact that the mode of dioxin's carcinogenicity is receptor-mediated, that is, dependent on the Ah receptor. First, we need to understand what is cancer.

Cancer is a group of more than one hundred diseases in which abnormal cells grow and spread unrestrained throughout the body. The dominant characteristic of cancer is uncontrolled cell growth resulting from loss of control over cell proliferation and cell survival. Cancer cells proliferate

excessively. They are no longer subject to most of the normal controls on cell growth.

Normal cells have multiple mechanisms to regulate their growth. They reproduce only when instructed to do so. Also, they undergo programmed cell death which occurs in an absolutely predictable pattern. Cancer cells, in stark contrast, violate this scheme. They become deaf to the usual controls on growth and follow their own internal agenda for reproduction. Cells replicate when they are supposed to be non-producing. Cells live when they are programmed to die.

What do receptors have to do with cancer? Normal cellular function is dependent on the cell's ability to process signals that the cell receives from sources outside and inside the cell. Cells need to sense the appropriate time to grow, divide, migrate, differentiate, survive or die. Cells contain an elaborate system of proteins that enable the cell to respond to these signals. These proteins are called receptors. AhR is such a receptor. Once activated, these receptors initiate signalling pathways which determine the response of the cells. Aberrant activation of one or more of these pathways can lead to unregulated cell division and the formation of a tumor.

The sequence of events associated with the AhR receptor-mediated mechanism can be explained as involving (a) entry of the dioxin into the cells, (b) binding of dioxin to the Ah receptor, (c) binding of the receptor-dioxin complex to DNA recognition sites, and (d) overexpression of specific genes relating to cell proliferation and cell death.

Signals from outside the cell (including exogenous chemicals such as dioxin) are recognized by the receptors on or within the target cell. The signalling molecule, which is referred to as a ligand, binds to the receptor. Binding of a ligand to a receptor may convert the receptor from an inactive to an active form which then initiates a chemical response in

the target cell. Activation of a receptor, such as the Ah receptor by dioxin, in and of itself is not sufficient to produce a biological effect.

After a complex series of processes, the activated receptor may bind to a certain region of the DNA. The DNA is the permanent repository for the genetic information of the cell. The function of the DNA is to direct the activities of the cell, including cell proliferation and programmed cell death. The DNA directs these activities through the manufacture (synthesis) of a huge variety of proteins which determine the behavior of the cell. This is known as gene expression.

Under the right circumstances, the activated dioxin-AhR receptor complex can bind to specific regions of the DNA known as dioxin responsive elements, or DREs. Those responsive elements of the DNA can affect cell proliferation and cell survival. This binding can alter gene expression, resulting in abnormal cell growth and survival of cells that normally would be programmed to die.

This upregulation of gene expression in itself does not cause cancer. It can, however, "promote" an existing cancer-prone cell.

This receptor-mediated mechanism implies a series of thresholds. First, there must be a sufficient quantity of ligand to result in receptor activation. Second, the biological response of the receptor to the ligand is non linear. Third, a sufficient number of receptors must be activated in order to send a potent enough signal to affect gene expression and ultimately cell proliferation and cell survival. There are other thresholds involved in receptor-mediation.

As we stated earlier, EPA accepts the fact that dioxin's carcinogenicity is receptor-mediated and proceeds through gene expression and/or a modification of the action of a number of receptor and hormone systems involved in cell growth and differentiation, such as the estrogen receptor.

Consequently, the science dictates that, at the very least, there is a strong presumption that dioxin's carcinogenicity is subject to a threshold and that threshold concepts should be utilized in modeling its cancer risk. These principles have been confirmed through extensive study of the estrogen receptor referenced by EPA.

There is general acceptance that dioxin operates as a promoter. EPA has classified dioxin as a strong promoter in its 2003 Reassessment of TCDD. What does that designation tell us as to whether dioxin should be managed on the basis of a threshold or linear model?

There are two broad classes of chemical carcinogens: genotoxic chemicals and non-genotoxic chemicals. Genotoxic chemicals directly damage the DNA and thereby mutate the genetic code. These chemicals are classified as initiators.

Non-genotoxic chemicals do not damage the DNA and thereby do not cause mutations in the genetic code. Non-genotoxic chemicals interfere with gene expression and growth factor signalling, thereby affecting normal cell regulation and resulting in proliferation of unwanted cells or the presence of "anarchic" cells that should be eliminated. There is no dispute that dioxin is a non-genotoxic chemical.

Nor is there any dispute that dioxin is a promoter. Promoters do not begin the cancer process. Mutations to the DNA are at the heart of cancer induction. Promoters do not cause mutations to the DNA. Rather, they enhance the development of cancer by expanding the population of cells that carry mutations.

Cells with mutations grow at a faster rate than normal cells, resulting in the clonal expansion of the cells carrying the mutation. The more cells there are carrying the growth enhancing mutation and the more times they divide, the greater the chance they will go through other mutations, carrying those cells one more step along the road to becoming cancer cells.

It has been well accepted for more than twenty years that promoters of carcinogenesis are non linear and exhibit thresholds of biological response. Consequently, the recognition that dioxin is a strong promoter implies a significant threshold aspect to its carcinogenicity.

Fortunately, this Court has the benefit of a recent critique by the National Academy of Sciences/National Research Council of EPA's 2003 Reassessment of TCDD. This critique was conducted by a committee of eighteen of our country's leading experts in cancer risk assessment. The committee was chaired by David L. Eaton, who is a party to this Amicus Brief.

In 2004, EPA requested the NRC to create an expert committee to review its 2003 Reassessment. In response, the NRC appointed the above Committee. The Committee was charged to review, among other things, EPA's modeling assumptions. The charge specifically requested that the Committee address the validity of the nonthreshold linear dose response model utilized by EPA in formulating its dioxin cancer potency factor.

After reviewing volumes of data, the Committee summarized its conclusions with regard to estimating dioxin's cancer risk as follows:

> Because nearly all data (both human epidemiologic studies and experimental animal bioassays) relevant to cancer risk are for doses much higher than those to which the general human population is typically exposed, analysts must extrapolate below the doses observed when estimating risks. This extrapolation depends on first fitting a dose response curve to the observed data from a given study and choosing a "point-of-departure" (POD), which corresponds to the lowest dose associated with adverse effects within the range of the data from the experiment or study.
>
> . . .

> This extrapolation must be based on assumption about how TCDD . . . might cause cancer. Thus, the selection of the type of mathematical model used to extrapolate below the POD is a critical decision in the cancer risk assessment process. In the 2003 Reassessment, EPA chose to extrapolate below the POD with a "linear" model which assumes that the biological response increases proportionally with the level of exposure starting at a dose of zero. Risk assessments based on this approach are general higher than those based on alternative "non linear" assumptions, where the biological response does not vary proportionately with the dose.
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> After reviewing EPA's 2003 Reassessment and additional scientific data published since completion of the Reassessment, *the committee unanimously agreed that the current weight of scientific evidence of the carcinogenicity of dioxin is adequate to justify the use of non linear methods consistent with a receptor mediated response to extrapolate below the POD.* [emphasis added] The committee points out the data from NTP [National Toxicology Program] released after EPA generated the 2003 Reassessment provide the most extensive information collected to date on TCDD carcinogenicity in test animals, and the committee found the NTP results to be compelling. The committee concludes that EPA should reevaluate dose-response relationships for TCDD. . . . *Specifically, the committee determines that the scientific evidence is consistent with receptor mediated responses and favor the use of a non linear model over the default linear assumption to extrapolate below the POD for dioxin-related cancer risk.* [emphasis added]

National Academy of Sciences, *Health Risks from Dioxin and Related Compounds: Evaluation of the EPA Reassessment* (2006) pgs. 15-16.

The Committee offered several reasons for its conclusion that a non linear threshold approach is appropriate for dioxin cancer risk management. First, the Committee found that there is insufficient evidence that dioxin has initiating activity. They further found that dioxin enhanced tumor development through tumor promotion and that the promoting activity is mediated through the activation of the Ah receptor. This in turn leads to a variety of changes to gene expression, including those relating to cell proliferation. The Committee went on to state, "*There is general consensus in the scientific community that non genotoxic carcinogens that act as tumor promoters exhibit non linear dose response relationships, and that thresholds (doses below which the expected response would be zero) are likely to be present.*" [emphasis added]. *Id* at pg. 122.

Second, the Committee stated that a fundamental concept in pharmacology is that receptor-mediated responses have non linear dose relationships. "Response is a function of the number of occupied and activated receptors which typically exhibit steep dose response relationships." *Id* at pg.124.

Third, in its own 2005 cancer guidelines, EPA provides the following guidance on choosing between linear and non linear extrapolation approaches: "a nonlinear approach should be selected when there are sufficient data to ascertain the mode of action and conclude that it is not linear at low doses and the agent does not demonstrate mutagenic or other activity consistent with linearity at low doses". *Id* at pg. 125.

Fourth, the recent NTP (National Toxicology Program) dioxin bioassay data provide evidence of non linearity.

In summation, both the biology and the extensive review by the NRC Committee, in the opinion of the *Amici*, strongly support the writ for certiorari and the requested relief—requiring the EPA to hold an APA hearing and to base its dioxin cancer risk management on accepted scientific

principles and data. The EPA itself has acknowledged in its 2003 Reassessment that it is important its dioxin cancer risk management be consistent with the current understanding of the scientific community. Unfortunately, EPA has failed to act in a manner consistent with this important pronouncement.

The NRC Committee also commented that the EPA should more thoroughly justify and communicate its bases for its approach to dose-response modeling. Specifically, they stated "the selection of the default linear extrapolation approach was one of the most critical decisions in the Reassessment, but the decision to use this approach was not supported by a scientifically rigorous argument. . .". *Id* at pg. 196.

This criticism is not new. For example, in 1995 EPA's Science Advisory Board published a report criticizing EPA's failure to articulate and explain its reasons for its dioxin linear modeling approach. Moreover, the EPA in the 1990's was repeatedly faulted for ignoring the scientific field of receptor technology. Among these critics was *Amici* Dr. Alan Poland who discovered the binding affinity relationship of dioxin to the Ah receptor. It should be noted that EPA has not altered its dioxin cancer potency factor since 1980 in spite of the many scientific advancements illuminating dioxin's modes of carcinogenicity.

The *Amici* believe that this continuing deficiency is another reason for this Court to grant the writ of certiorari.

CONCLUSION

The petition for writ of certiorari should be granted.

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